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THE CINCINNATI

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J. C. CULBERTSON, M. D., Editor.

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THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

Vol. XXI.—JANUARY, 1878.—No. 1.

Original Communications.

Article I.—Surgical Clinic.—Is Carcinoma of the Blood, or is it a Local Affection?—Scirrhus of the Breast. Operation for; how and when to perform Excision.

BY W. W. DAWSON, M. D.,
Surgeon to Good Samaritan Hospital, Cincinnati, O.

Gentlemen:—Scirrhus of the breast, a disease so frequent and destroying so many valuable lives, challenges our study and presents claims upon the best resources of our profession. It is most usually found in women from thirty to fifty years of age, occasionally it attacks the young, and is by no means uncommon in the old; three-score and ten is not an exemption. About five years ago I operated on a married lady, aged 20, for a rapidly developed scirrhus of the left mamma. The peri-glandular fat was freely infiltrated with small indurated masses, these I removed as completely as possible; since the excision she has given birth to a child; there has been no recurrence of the disease. My oldest patient was 60; a few months after the operation the affection reappeared.

The years after the climacteric seem to be the fated ones for the development of malignant disease. The dangers consequent upon child-bearing having passed, good health and long life seeming to be assured, all is suddenly arrested by the appearance of a tumor in the breast. Sometimes it has been heralded by pain, but more often it has attained considerable size before its presence is discovered. Yesterday I examined a lady who had a scirrhus growth in the left breast as large as an orange; some months ago she detected it when bathing; it was at that time at least one inch in diameter, but it had given her no pain whatever—and now, although the tumor be so large, her sufferings are more mental than physical. Pain, when present, as an element of diagnosis in malignant degeneration of the mammary gland cannot be relied on, as it has no definite character; in some instances it is of a burning stinging nature, in others it is described as if needles were being thrust into the tumor. Again, some patients complain of dull aching sensations in both the affected and unaffected part of the organ.

The retracted nipple and the stone-like tumor are the two factors of most value, the first, like the skin dimples, produced by a fibrous prolongation from the tumor, is almost always present, the last must be recognized for an unquestioned definition of the case.

In the patient which I present to-day, and the same was true in the woman upon whom I operated two weeks ago, the pain is of the dull aching character, the nipple is retracted and the tumor has the pathognomonic hardness.

Amputation of the breast for malignant disease has justly been regarded as an unpromising operation. Recurrence of the disease has been the rule, and exceptions to this rule having been so few some surgeons have hesitated—have doubted the propriety of a resort to the knife.

Is there a period in the history of carcinoma of the breast when the disease is essentially local. Or is it always but one of a number of expressions of a cancerous cachexia. The promise of an operation depends upon the solution to this question. If the first part of the question be answered in the affirmative then there can be no doubt upon the propriety of a resort to the knife, if however, the latter be affirmed then we may well hesitate upon adopting operative interference.

The observation of most practitioners affirm the proposition that there is a period in most cases when the disease is confined to the locality—in fact to the tumor itself. The clinical experience of operating surgeons furnishes cases that ought to be accepted as conclusive upon this matter. The case of Sir James Paget, in which his patient lived eleven years and a half after the removal of a scirrhus breast and died of muscular atrophy, presents evidence of much weight and goes far towards establishing the affirmation of the proposition. Case books abound in such instances but it must however be admitted that the unfortunate out-number the fortunate. The number of those in which the disease did not reappear is less than those in which there was a recurrence. The reason of this will be apparent in the settlement of the question as to whether the disease originates in the tumor or rather whether the tumor is the disease or only an expression of a vice in the blood.

The successful cases in which the knife has been early resorted to, goes far towards determining as I have said the local origin of the disease.

Pathologists upon this subject differ radically, their teachings are scarcely so uniform as are the experiences of operators.

Sir James Paget says: "I would say that a cancer is from the first both a constitutional and a specific disease. I believe it to be constitutional, in the sense of having its origin and chief support in the blood, by which the constitution of the whole body is maintained; and I believe it to be specific, 1st, in the sense of its being dependent on some specific material, which is different from all the natural constituents of the body, and different from all the materials formed in other processes of disease, and 2nd, in the sense of its presenting in the large majority of cases structures which are specific or peculiar, both in their form and in their mode of life."

Such an assertion, so emphatic upon the blood theory of the disease may well cause a pause in the enthusiastic surgeon, but when it is placed by the side of the following more recent and equally authoritative statement it loses somewhat of its force and takes the position of advice rather than of command; of opinion, rather than of law. Billroth in his Surgical Pathology says: "We may say that Carcinomatæ are very infectious tumors, and that this infection which first attacks the lymphatic glands, afterwards more distant organs is probably due to the passage of elements from the tumor (whether of cells or juice is not yet known) through the lymphatic vessels and veins into the blood." Here the local origin of cancer is clearly stated, forcibly taught. It cannot be denied that there is in some instances a true cancerous cachexia, and that the disease is occasionally hereditary, but these facts do not prove that it is always constitutional, always primarily in the blood. Allow me to state a few significant points, and I beg, gentlemen, your close attention to them.

(1) A recurrence does not prove that a disease is in the system, for we find this disposition to return in a certain class of fibroids that have never been suspicioned of originating in the blood.

(2) In a great number of cases scirrhus of the breast is traced directly to a blow upon the organ. Previously, the woman had been in robust health, yet a malignant tumor followed a slight trauma. Cancer of the lip is often traced directly to the irritation of the pipe-stem.

(3) After removal, in fact often during the course of the disease, the general health of the patient is good.

(4) When the disease returns, it is usually in the cicatrix or in its neighborhood.

(5) A cancerous tumor may exist for years and no dyscrasia be manifested.

(6) The truly impressive fact that after the excision of unquestioned cancerous tumors, patients have lived for years in a state of *positive health.*

(7) Virchow teaches that, in many cases, cancer is of local origin, and the researches of pathologists of the present day tend to the verification of the views of this great and original investigator.

Assuming then with Billroth, Virchow and others that scirrhus of the breast is for a time at least, in numerous cases local, we may well enquire why the operation for its removal has been so unfortunate, why the disease has so frequently returned.

Three reasons may be stated, (1) the operation is not performed sufficiently early while the disease is essentially confined to the gland, before the "passage of elements from the tumor whether of cells or juice through the lymphatic vessels and veins into the blood." (2) The faulty plan of removing only the tumor, not excising the unaffected part of the gland and the neighboring fat, in both of which there may be out-liers of malignant matter not perceptible to the eye. Upon this subject Sir James Paget says: "The existence of cancer cells infiltrated amongst the tissues which surround the actual cancerous tumor, and which to the naked eye may appear to be perfectly healthy, has, however, now been frequently demonstrated by more than one pathologist." (3) The disease usually reappears in the cicatrix, hence the entire skin with the tumor and gland should be removed, leaving an open wound to heal by granulation. An effort is usually made to form a handsome looking operation by bringing the skin together. How often are hopes of union by the first intention realized? Seldom, I think will be the common answer; pockets of matter, on the contrary, have been the rule. As the flaps although united by sutures, in a few days recede we might as well, if we had no other reason, leave, at the beginning, the floor of the wound exposed.

Why is recurrence so frequent in the cicatrix? Billroth answers this question when he says that the mammary gland is "a derivative of the epidermis, a cutaneous fat-gland on a large scale." And that mammary cancer "seems to me always to begin with a coincident enlargement of the small round epithelial cells in the acini and with small-celled infiltration of the connective tissue around them." Here clinical experience is reinforced by pathological demonstrations.

Another weighty suggestion for removing the skin arising from the kinship between the mammary gland and epithelial tissue, is the fact that epithelial cancers, of unmistakable carcinomatous nature, when radically removed, do not show a recurrent disposition.

The rule then should be,—*operate early, remove with the tumor the unaffected part of the gland, the peri-glandular fat and the skin.*

Two weeks ago I amputated the left breast for scirrhus and today I bring before you another lady similarly affected and upon whom I propose to make the same operation. Whilst my patient is becoming anæsthetised I desire to call your attention to this wound now two weeks after the excision. You will remember that the amputation was made in the manner which I have just described, removing the entire mass down to the pectoral muscle; the wound filled with vasaline and over this placed a compress. My surgical interne, Dr. Samuels, informs me that there has scarcely been enough pus discharged to soil the lint. When the wound is uncovered you see how clean and healthy it looks, how rapidly it is contracting. In my experience I have seen no dressing equal to vasaline, it is essentially antiseptic, effectually excluding by its consistence the air.

But to return to the case before us. This lady is about fifty years of age, and first noticed an enlargement of the left breast about eight months ago; since then the whole gland has rapidly enlarged until it is now more than twice its normal size. The induration is unequal, at one point it is hard, stone-like to the touch. The skin is firm, leathery and its pores unusually large; there is no dimple upon it nor does it pit on pressure. The tumor seems to be firmly fixed to the tissues beneath. The nipple has been retracted for three months. I can find no axillary involvement. Her general health is excellent. Is this a favorable case for an operation?

There are some unpromising features. (1) Its rapid development. (2) The extensive involvement of the skin. (3) Its close attchment to the pectoral muscle.

An operation, the entire excision of the gland, and of the skin covering it, offers her all that there is in the resources of our art.

Internal remedies have proved useless. Compression has ended only in disappointment. Caustics are barbarous. Some of you may remember, how, a few years ago, the hopes of the affected were raised, only to be cast down, by cundurango. It was championed by unscrupulous doctors and certified to by soulless politicians. Thousands were spent for it and in no single instance did it give comfort much less affect a cure.

Will a thorough excision, even should recurrence take place, prolong life? I think both pathologists and clinicians would answer this question in the affirmative and upon a proposition closely associated, both classes would also affirm, that the removal adds to the comfort of the patient.

With two or three bold sweeps of the knife I remove the whole mass, the skin, the gland enclosing the scirrhus and a portion of fat. The large part of the neighboring fat still remains, this I dissect out with the forceps and curved scissors.

I regret to see that the scirrhus tumor had already seized the pectoral muscle, an unfavorable complication always. Acting upon the hope that the disease may yet be local, confined to the gland and its immediate neighbors, I think it best to pick up the affected parts of the muscle and divide them freely—below—deeper than the infiltration seems to extend.

Now let us examine the tumor. I make a section through the most solid part, its consistence is cartilage like. The cut surface has a greyish appearance, with here and there a yellowish stria, and yields when scraped a fluid a little more dense than water. The hard character of the tumor however settles its nature, no other morbid product equals scirrhus in this quality.

Unpromising as this case is in many of its features I have however, no doubt but the operation if it does not completely relieve will prolong this woman's life and add to her comfort.

More than 18 months ago I was called to Kentucky to operate on a case of scirrhus of the breast. I found the gland hard, boulder-like and an ulcerated surface upon its summit 2 inches by 1½ inches in extent. I was about to decline the case, it was so unpromising, when it occurred to me to remove the mass, according to the plan I have discussed. She is now in robust health. In an effort to make a handsome looking operation, the skin, with cancer germs, would have been left and my patient in all probability would ere this have been destroyed. I can call to mind a number of operations in which I committed this error, that is, I saved skin that was not above suspicion, so that I could close the wound according to the instructions of the books. Gant, after advising that the lips of the wound be brought together says: "Primary union sometimes takes place, and in a few days; but more frequently this union is spurious, and the wound opens up partially at least, with suppuration, and heals by granulation."

Erichsen thinks union by primary adhesion more frequent, but admits when discussing the two plans that recurrence most usually takes place in the cicatrix and suggests (an important suggestion by the way), that cancer cells may be eliminated by the suppuration process.

If then, as Gant observes, the flaps fall, in most instances, apart, and as Erichsen asserts in the suppurative process cancer germs may be destroyed, healing by granulation is an end rather to be sought than avoided.

As I do not intend to bring the lips of the wound together it matters little in what direction the incisions are made, whether vertically, from side to side or in the course of the pectoralis major.

I would again, gentlemen, repeat that in estimating tumors of the breast one thing you should never lose sight of—I mean the peculiar hardness of scirrhus. It cannot be likened to any other morbid growth. It is nowhere else seen except in the base of an epithelial ulcer. This hardness characterizes the tumor in all stages of its growth, it may be detected as well in the deposit the size of a filbert as in that which has attained the dimensions of the closed hand.

A question sometimes arises, and we are called upon to decide between the solidity of a fibroid and the hardness of a scirrhus, the first is elastic, the last unyielding.

When it is remembered that the large majority of tumors of the mammæ are malignant most of them being scirrhus, a few encephaloid, still fewer colloid and occasionally a sarcomata, it would be a safe rule to follow to remove all having a suspicion of cancerous degeneration. If the tumor prove to be benign one breast is left which is sufficient for maternity, if it be cancerous you have given your patient all the advantages of an early and radical operation.

Art. 2.—Relation of the Sense of Hearing to Voice and Speech, as regards deaf Mutes.

By J. R. Davy, M. D., Cincinnati, Ohio.

Professor Dunglison in his lectures in the Jefferson Medical College used to teach that the voice depended so greatly on the sense of hearing that when the latter was lost, the former speedily disappeared. Thus the fact that dumbness is the general companion of deafness was thought by him to be strictly unavoidable inasmuch as the individual having lost the faculty of audition, possessed nothing by which to measure and modulate his voice. In this condition of disease the muscles of the larynx became gradually weaker until at the end of a certain period, the voice was irretrievably lost.

This idea of Prof. Dunglison was in accordance with the teaching of the day; that it was to a great extent ill-founded, will appear when we have critically examined the subject.

Cophosis or deafness is an impaired condition of the apparatus of audition.

We have no evidence that the brain proper of a deaf-mute is affected or that the faculty of hearing, assuming there is one, is at all abnormal beyond being in a rudimentary condition. In a well nourished individual we must conclude that the organ for appreciating sound waves is, with this exception in fact no matter how the the so-called apparatus of audition, whose office is to transform units of matter into units of mind, is distorted.

A very important yet perplexing question is—where does the receiving apparatus end and the appreciating apparatus begin? It is highly supposable that there is a chain of nervous matter passing on from the fourth vertricle to some restricted portion of the cerebrum; but when we have followed the auditory nerve from the membranous labyrinth of the internal ear to the gray nucleus in the floor of the fourth ventricle, we have our say in the matter—the rest is mere speculation.

The term appreciation, applied by writers to the function of the rods of Corti, is, I think, a misapplication since it might be interpreted to imply intelligence, an impossibility so far away from the great central organ.

The rods of Corti may vibrate in unison with the different tones, but the impressions arising from these vibrations, must be carried inward to the brain and their characters arrived at there. We may say this much with truth—the receiving part of the auditory apparatus lies external to the Portio Mollis of the 7th pair, and the appreciating part, as absolute in existence without being understood by us, lies internal to that nerve.

The books tell us that destruction of the Membrana Tympani does not produce deafness, the vibration of sound, and even of musical tones still being recognized by the internal ear. This latter comprising the cochlea, vestibule and semi-circular canals (of which the cochlea performs the most important part), is where the nervous element begins, and where, unfortunately, our knowledge ceases. It is not necessary to say that most cases of deafness depend upon some fault of the internal ear.

The voice is ascribed by physiologists to the vibration of the true vocal cords assisted to some extent by the trachea, and the resonant cavities of the larynx and mouth. The intrinsic muscles of the larynx control the apparatus, and keep it in tune, as it were. These little muscles are supplied by filaments derived from the spinal accessory through the communicating branch to the pneumogastric, and are under the control of the will, though like other voluntary muscles, act in obedience to another control when the will is absent.

The characters of the voice have been enumerated as intensity, quality, and pitch. Pitch depends upon the length and tension of the vocal cords. Quality of tone differs with the different sexes, the child, and the adult; and even different individuals of the same age and sex. Intensity is the result of forced action of the apparatus.

What concerns us more particularly in this connection is the faculty of language. Words are composed of certain characters which represent sounds. These are called vowels and consonants. The former are produced by the vocal cords, and the latter by the combined action of the larynx and mouth — they are divided further into palatals, linguals, labials, gutturals and nasals. To produce a certain sound we must bring a certain set of muscles into action. If it be the sound of one of our own words, we pronounce it with ease and fluency; if a foreign sound, it is pronounced with difficulty. Every adult who has studied a foreign language knows with what trouble he has learned to speak it. In the individual of one language, the muscles, so to speak, have formed a bed for themselves in which they play, producing the requisite degree of change in the organ to make the normal sounds, and no more. In another tongue the sounds are different, requiring an additional or different action of the laryngeal muscles.

A new born child may be compared with a deaf-mute so far as the condition of the larynx is concerned. The muscles of each are simply undeveloped, and may be brought out by proper training; while the noises produced by both are the result of an almost passive condition of the larynx, hardly deserving the name of voice.

The importance of educating these muscles in the deaf-mute will be seen at once. But in this we will have a greater difficulty to contend with than in the young child. The child gets almost every idea leading to the production .of voice through the ear, whose use the other is deprived of.

This brings us to consider the very important question as to whether or not deaf-mutes are sensible of speaking audibly, and if so how do they receive such impressions. But before I answer these questions I wish to relate my experience at the " Taubstummen Anstalt" of Vienna. At the "K. K. Taubstummen Anstalt, of Vienna, deaf and dumb children are taught to speak "viva voce," and not with signs as is the usual method in this country and France.

I was fortunate enough to be present at a public examination of the pupils of this institution. The pupils with whom the affliction was mostly congenital, were from eight to fourteen years of age; and those farthest advanced had been in the institution about four years. The first boy called up had been a hydrocephalic child. He looked instantly at the mouth of the instructor pronouncing each word over after him with a peculiar snoring sound yet distinctly enough to be understood. The next called was a bright little fellow (affection congenital) who caught the questions quickly, and answered them readily and distinctly. With this boy quite a number of tests were given. The teacher wrote something on a slate, and handed it to me. Then going through the motions that it would require to utter it without making the slighest sound, the boy understood and replied immediately. I then tried the same thing myself with a similar result.

The boy was then placed with his back to the teacher and class, and questions were given him in a very loud voice. He exhibited no signs of hearing them, but turned around suddenly after a knock on the floor. He was again placed in the same position, and told to remain until he was called. In about half a minute he turned around imagining something had been said when no one had uttered a word. There was some difficulty making this boy understand the English sound of T. He invariably called it D. After several fruitless attempts in the ordinary way, the instructor seized the boy's hand, and, pronouncing the latter against its posterior surface, succeeded at once in conveying the idea.

After this, others, male and female, were introduced talking fluently and without effort; yet absolutely devoid of all sense of hearing, and had been born so. They all spoke in a peculiar singing monotone, which I took as additional evidence of complete deafness.

I have recently had a conversation with Mr. Middleton, of this city who has had thirty-six years experience as an instructor in deaf and dumb institutions in this country. He informed me that often while playing upon a musical instrument the pupils would come up and touch the instrument with the fingers, and express themselves as pleased with the impressions they received. When a band was playing in the street they would lay their hands on the window pane, and seemingly enjoy it.

We can now return to the question "are deaf-mutes sensible of speaking audibly?"

After my experience at the Vienna *Taubstummen Anstalt*, I have no hesitance in answering yes. To determine the extent of this knowledge and the precise manner of acquiring it, is exceedingly difficult. If we take the ideas of writers on the subject, we will say that impressions of sound reach them in only two ways—through vibrations of the air, and vibrations of the cranial bones.

Dalton denies the existence of the last, except to the slightest extent; for, says he, were this the case we could hear the sounds of our own heart and lungs. It is unreasonable to suppose that they receive impressions of sound in the usual way—*i. e.*, through the vibrations of air. They must get such impressions then through the vibrations of the solid tissues repeated until they reach the internal ear. But we cannot explain in this way all the phenomena peculiar to deaf-mutes. When the instructor whispered against the back of the pupil's hand, the vibrations of that whisper were certainly not continued as far as the internal ear with sufficient force to be perceived. It is possible that the nerves of common sensation have something to do with this, yet it would be hasty in me to make such an assertion without knowing the importance of the phenomenon above referred to. The deaf-mute feels however, that muscles are contracting, air is rushing through the passages, and vibrations are going on; and according to the quality and extent of the impressions received in this way, is his knowledge of speaking audibly. The seeming paradox of "deafness without dumbness" is by this explained at once; and it does not seem impossible that by education the so-called deaf-mute may eventually be made to modulate his voice.

The fact that the internal laryngeal muscles are under the control of the will, and that the individual is sensible of bringing them into action, makes the truth of the last assertion more apparent.

With these facts in our minds we cannot fail to see that the only proper treatment for dumbness is education of the vocal muscles. By the proper training, muscle may be deposited in the leg or arm of any individual, and why not in the larynx? The larynx of a congenital deaf-mute is supplied with muscles like that of any other child, and these muscles possess the same susceptibility to education, only the manner of causing them to act properly is difficult. In the complete loss of function of the ear, the sense of hearing may be imperfectly replaced by the touch or sight; and these, one or both, might be used in teaching the congenital deaf mute to articulate. By the aid of the eye he can read the lips of the instructor, or with a mirror he can modify the condition of his own mouth and larynx so as to produce the necessary sounds. By the touch he can determine vibrations in any solid body, and moreover discriminate between sounds of different pitch. With the fingers pressed against the larynx almost any one can determine the difference in the sounds proceeding from that organ, and can we doubt that this is much more perfect in individuals whose tactile sensibility far surpasses ours.

It has been urged against the articulating method that life is too short to accomplish very much in this tedious way, and the amount of trouble far in excess of the good derived from it. I question the propriety of this objection, as I believe that the present education modifies to a certain extent the existence of the trouble in coming generations.

Being outcasts from society, deaf-mutes generally marry among themselves; and this, according to the laws of reproduction, tends to perpetuate the malady. If the articulate method is pursued the vocal organ may be made to retain its power despite the continued inability of the ear; if the sign method is used instead, the voice cannot fail to perish after a certain period.

A recent work entitled "Deaf, not Dumb," by Mr. Ackers, of London, has appeared, and, of which, the British Medical Journal of Oct. 6th, has a short review. Mr. Ackers has visited personally nearly all the deaf and dumb institutions in Europe and America, and decides very positively in favor of the articulate method; although he concludes that the French system is more readily taught. The most fertile cause of total deafness he sets down as intermarrying of the congenitally deaf—of the accidental causes, scarlet fever is the most frequent.

In conclusion I will say that this paper is presented simply to call attention to some facts which are not generally understood. My attempt at a solution of the physiological problem "Deafness ness without Dumbness," is by no means offered as final or complete.

The fact to which special attention is directed, is that dumb children may be taught to articulate whether their loss of speech arises from accidental or congenital deafness.

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Art. 3.—State Medicine and Hygiene.

A Paper read before the Tri-State Medical Society, at Evansville, Ind., by

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Mr. President and Gentlemen of the Society:—The proposition I desire to present in the following paper, is, that the enactment by the state of judicious sanitary laws and their proper enforcement, will result in great and mutual benefits to the state and her citizens.

In order to accomplish this desired legislation we should present to our legislators, our public men and our citizens in a plain and comprehensive manner, the great advantages to be derived from proper sanitary legislation and the enforcement of laws for the preservation of health and the warding off of disease; that incalculable benefits would accrue to the material growth of the population of the state, that uniform health could be established, that prosperity, wealth and happiness would be secured to the people, that all of her citizens with almost entire immunity from disease, with healthy blood coursing through their veins, with strong muscles and vigorous constitutions, could each, one and all place their shoulders to the wheels of industry, and roll up in countless millions the wealth that brings to the state prosperity, happiness and greatness.

We should show them that such blights and scourges as are produced by epidemic cholera, small-pox, typhoid fever, and epidemic dysentery, depend usually upon local causes that science can demonstrate, and that properly enforced sanitary laws can exterminate and banish from the land as effectually as the march of civilization has exterminated from our forests the worthless and ferocious beasts, which were once the terror and the destructive enemies of the pioneer settlers.

We should show them that physicians are not mere enthusiasts, holding only visionary theories on the subject of sanitary laws, but that the great good they claim can be done, has been demonstrated by scientific research, and the results verified by actual experience in the application of these laws. Let us convince them that we bring no selfish axes to grind, that we do not ask them to put money into our purses, that we are actuated by the nobler motives of philanthropy, that while the true physician discovers, though it may be by the incessant toil of a life-time anything that will benefit mankind, the laws and education by which he is governed, will not permit him to lock it up in his own breast as a secret to be published only when it will add to his wealth or worldly importance; he is not permitted to bottle up his discoveries and cover them with high sounding names and glittering labels, such as are found on the worthless nostrums and proprietary medicines, that flood the country and do incalculable damage by promising that which their ingredients do not contain a single element to accomplish. We should show them that facts and figures can be made to elucidate and prove the truths claimed and the benefits to accrue from well enforced proper sanitary laws, as clearly as we can prove any proposition in science or mathematics.

Let us show them that money appropriated for this purpose will yield to the states and to the people, mutually, a larger dividend than can be made from any other investment; that the subject is one fraught with the best interests of the people, whose trusted agents our law-makers are, we would then experience no difficulty in enlisting their hearty co-operation in enacting a law creating a State Board of Health, composed of our most worthy physicians and scientific citizens. In presenting this subject in such a manner as to gain the confidence of the public and of our legislators, we should present such facts as have resulted from scientific study and carefully recorded investigations into the nature and history of diseases and the laws which unerringly point to their origin and the direction which marks their course; we must enlist the earnest interest and co-operation of the medical profession in this important work; we must also place the subject before the people, until they shall demand that something be done for them by the state to ward off all epidemic diseases. the appearance of which brings so much suffering and sorrow, and causes so much loss of life, of time, and of money. The responsibility for the cause of their complaint falls directly upon the government, and to some extent on the medical profession.

If the citizens of the state generally could be induced to investigate and understand the importance of the subject, we should not be surprised to hear "loud muttering and great indignation among the people because they are not shielded from these afflictions."

The medical profession, although the people naturally look to them for protection, are not so much to blame because the people especially of Indiana have not been protected. Our medical men have presented the case to the legislature of the state and made frequent and urgent appeals; they have succeeded so far as to have a law passed in the lower house which was defeated in the senate. The legislature has not been unanimous in thinking it best to enact any laws or appropriate any money for the organization of a State Board of Health.

The medical profession are all the time cognizant of the dangers to which the people are subjected, but they are powerless to provide for their defence against epidemic disease.

A properly organized state Board of Health could do much toward preventing the appearance or spread of epidemic diseases, which cause so much suffering and such great loss of human life.

Dr. W. M. Compton, in an able paper read before the State Medical Society, of Mississippi, on the 4th of April, says: "As the natural guardians of the public health. it has been too much the end and aim of most of us to acquaint ourselves with those means and appliances, which have for their object the cure, rather than the prevention of disease. Prompted by the spirit of that adage which says that "an ounce of preventive is worth more than a pound of cure," the energies of some of the best Medical Minds of the age are now being turned to the study and elucidation of those means by which disease can be prevented, and the public health preserved. The bare mention of such a proposition commends itself without argument or exhortation to the great heart of humanity. As sanitarians we may not command the applause and open expressions of gratitude, which are now and then extended to those heroes in our profession, whose sublime courage bears them up day by day and night after night, doing battle against the ravages of a pestilence, inhaling at every step in the conflict, the very poison against which they are contending. Let all honor be paid to those martyrs who have fallen in the line of duty. New Orleans, Shreveport, Natchez, Mobile, Savannah, Memphis, every where that pestilence has gone, heroes have been found to meet it.

To the memory of these let the marble shaft arise; they died at their posts in the service of their fellowmen. But in medicine as in the science of government "peace hath her victories no less pronounced than war." While the glittering sword of the victorious military chieftain has commanded the admiration of mankind in all ages, a higher and holier veneration is due to the wisdom of the statesman whose skill averts the calamities of war.

So while laurel wreaths should encircle the brow of the skillful and heroic physician who snatches from the grasp of death and restores to health seventy-five per cent. of his patients, a more exalted tribute should be paid to him by whose wise counsel and forethought the whole hundred are protected from disease. The physicians of London deserved and received great credit for their fidelity in the almost hopeless struggle against small-pox, which was such a malignant scourge, one-hundred years ago. But imperishable honors cluster about the memory of the immortal Jenner, who found the means of preventing the disease or so modifying it as to to render it comparatively harmless.

Jenner had no microscope; Jenner was not an expert chemist; but Jenner had eyes, and he saw; he had ears, and he heard.

The milk-maids told him that those of them who had cow-pox, were protected from small-pox; upon this hint he went to work and established vaccination in the world. And behold what vaccination has done. In Ireland, vaccination was made compulsory in 1863. Since that time the Irish poor law commissioners have carried out the provisions of the law, and the whole population has been vaccinated. The results are seen in the following figures, from which it appears that the Irish physicians have banished small-pox from Ireland as successfully as St. Patrick banished the snakes.

Where in the period of 1830 to 1840—1840 to 1850—1850 to 1860 the respective anual mortalities had been 5,800—3,827 and 1,270. In 1864, 1865, 1866, 1867, 1868, they were 850, 847, 186,—20 and 19 respectively. In the first half of 1869 the whole number was 3. The deaths from small-pox in Ireland, since 1866 have been so few that it is fair to suppose the cases have been imported from abroad.

If small-pox can be banished from Ireland, can it not be banished from the civilized world?

Small-pox is produced by a specific poison and is propagated by contagion or infection. By whatever name this cause may be designated, whether bacteria or vibrione, or what not, it has an individual existence and occupies a distinct place in the kingdom of organic life, whether animal or vegetable as a bird or a tree." Dr. George Derby in a paper in the first annual report of the board of health of Massachusetts, claims that though the proposal to stamp these diseases out looks visionary, "yet it is perfectly consistent with what we know of the manner in which these diseases are propagated." He then illustrates the truth of this statement by the following facts. "In one of the Faroe Islands, a remote place rarely visited by strangers, but containing 7,782 inhabitants, there had been no measles for sixty-five years. In 1846 it was imported by a sick sailor and 6,000 of the people took the disease."

In the Scilla Islands with an average mortality from other diseases, no deaths occurred from small-pox, measles or scarlet fever for ten years, from 1851 to 1860. In both these instances the sole exciting cause—contagion, was wanting for long periods."

As so well said by Dr. Compton, before mentioned—"In obedience to that common law of decay and death, to which all organic life is subject, if there is no reproduction the species will die out."

It is impossible to produce a bird without an egg, or an oak without an acorn, and it is equally impossible to produce small-pox without the small-pox germ. And it is not only necessary that you should have the egg and the acorn, but you must place them under certain conditions of warmth, moisture, soil, etc., to bring either of them to perfection. There must be a proper nidus, else the egg will spoil and the acorn rot.

Dr. Ramsey in his medical history of South Carolina says: "As to the correctness of placing malarial diseases in the class of those preventable, we do not propose to enter into a lengthy discussion, but facts which tend to the possibility of reclaiming regions from the influence of malaria are numerous. While we are unable to say what is the true source of the poison that produces these forms of disease, it is certain that through the collection in communities and the drainage that usually follows as a result, the diseases have been caused to disappear, from regions which they once possessed."

The site of Charleston in its natural state was a slip of land stretching southeastwardly between two rivers, and projecting into the harbor formed by their junction, and divided into a number of peninsulas by creeks and marshes, indenting it on three sides, so as to leave but little unbroken high lands in the middle. Under these circumstances the town was a prey to malarial fevers, which rendered it almost uninhabitable from June to October. By the process of filling and building, these fevers gradually diminished and at the present day have disappeared."

Similar statements may be truthfully made concerning our city of Evansville of to-day, compared with the same twenty years ago. Then we had a canal running through the entire length of the city, and which about that time ceased to be used as a means of transportation through the city, and the water contained therein became stagnant and the receptacle of all the contiguous surface drainage, and filth of every kind, dead animals of various kinds and sizes, were thrown into it and pollution of the very worst character, during the summer months, rendered its green and polluted waters a cess-pool and hot-bed for the generation of diseased germs which were carried by the atmosphere and invaded the residences for squares around; particularly on the north side of it, as the summer winds were mostly from the south, and malarial fevers were distressingly prevalent.

In other portions of the city where stagnant ponds and pools of water remained to dry up under the summer sun, frequent cases of malarial fever prevails with all the injurious consequences to the system, which experience and observation have shown to follow this class of diseases.

The canal has been entirely filled and through the scientific use of the compass and level in the hands of competent civil engineers, a successful drainage has been given to one-hundred miles of streets, and ten and a half miles of underground sewerage have been made in those portions of the city most needing them, and it is now a rare case that malarial fevers are found in that portion of the city thus improved, and Evansville may now justly claim to be the healthiest city in the latitude in which it is situated; while in the suburbs of the city too thinly settled to bear the tax of such improvements, cases of malarial fevers are found to be very numerous. From the able paper of Dr. Compton on State medicine in Mississippi I take the following: "After all, that unknown agent called malaria is the greatest curse known to human health, and he that finds the means to destroy it and render it innocuous, will be the greatest benefactor the world ever saw.

Epidemics of cholera and yellow fever come like tornadoes when they do come, and swell the list of mortality to an alarming extent for a time and then disappear. But malaria is always with us, is always at work. Its victims fall one at a time, but they are constantly falling. I suppose malaria carries more human beings to the grave in Mississippi than all other causes combined.

The medical philosopher looks forward to the time when the great Mississippi Valley will be to this nation what the Valley of the Nile was to ancient Egypt. Its great forests will be removed and every foot of that fertile alluvium will be cleared and in cultivation. Canals and railroads will intersect canals and railroads at convenient places.

The earth will teem with the products of skilled agriculture. Millions of human beings will live where thousands now are found. Sallow skins, torpid livers, enlarged spleens and feeble muscles, will give way to ruddy cheeks, healthy organs and athletic limbs. Fever and ague will be known only in history, and the goddess of Hygiea herself will return to the earth and take up her abode in our midst."

In connection with this subject of malaria and the evidences of its vegetable origin I have a most interesting report to make from the recent investigations made by two Italian physicians, and reported in the Medical and Surgical Reporter of Philadelphia, on the 11th of August, 1877.

These physicians have recently discovered the vegetable origin of malaria in portions of plants of the Algæ species, and the malarial germs or granules have been found to increase in number with the decay of the plants. They are identical with the pigment granules of the liver, spleen and blood of persons who have suffered with malarial diseases. One of these physicians has obtained from the cultivation of the granules of the liver of persons who have suffered from malarial fever, bacteria, identical with those cultivated from the evaporation of marshy pools in summer, where great sheets of decomposing algæ are exposed to the air, and where the sphero bacteria abound, and are found floating in vast numbers in the atmosphere, to the hight of several feet above the marsh.

From an able report to the South Carolina Medical Association, by Dr. Manning Simonds, I take the following, in order to show the cost in money that is sustained by epidemic and other forms of diseases which to a great extent could be prevented. He says: "The assumption of the possibility of preventing a large proportion of the diseases that now exist in communities, has been made the basis of some ingenious calculations. The money standard has been chosen as that most likely to appeal to the understanding of a majority of the people, who estimate the value of ideas and things not for what they are really worth, but what they will bring in a pecuniary point of view. Most interesting and startling results have been obtained; results which are calculated to attract more interest to the subject of public hygiene, than any number of scientific papers. Dr. Lee, of Philadelphia, in a paper read before the public health association, applied this test to the epidemic of small-pox in Philadelphia.

"The object of the paper is to furnish an approximative determination of the loss sustained by the city of Philadelphia in dollars and cents, in consequence of the presence of small-pox in the winter of 1871—72 and placing side by side with this, the degree in which this loss might have been prevented by judicious legislation rigidly enforced; to attempt to convey to the public mind a conviction of the immense economy in a pecuniary point of view, of a generous outlay for the prevention of disease, and a healthy coöperation in all measures, designed to promote this object.

Liberal estimates for increased expenditures by the Board of Health and a determination of the degree in which the measures thus carried out, would have diminished the losses, was prefaced by a review of the mode in which an epidemic was managed in the interest of trade.

The total cost of the epidemic was $25,478,977,99. A table which contained the figures giving what would have been the cost had the policy of prevention been pursued, showed a difference in favor of sanitation of $24,720,718,99. In an article in the Report of State Board of Health of Georgia, for 1876, Dr. Eli McClellan makes the following computation of loss, in money caused by the epidemic in Savannah in the summer of 1876 :

1.	Loss by expenditure for refugees,	$500,000.
2.	" in sales of merchandise,	75,000.
3.	" in declination of cotton export,	75,000.
4.	" to rail road corporations,	200,000.
5.	" in rents and depreciation of property,	300,000.
6.	" of taxes to city,	50,000.
7.	" to professional men,	300,000.
8.	" to taxes to the state,	100,000.
9.	" to hotel proprietors,	25,000.
10.	" in wages to the working classes,	1,237,960.
11.	" in human life,	2,443,000.
12.	" in interment of the dead,	31,000.
13.	" in care of the sick,	37,000.
14.	" of costs in special sanitary work,	41,000.
15.	" in amount expended in charity,	120,000.
		$5,962,357.

The testimony clearly shows that this epidemic was introduced into Savannah by vessels arriving there from ports where yellow fever prevailed, and a very small outlay of money would have been sufficient to have paid sanitary officers to enforce such Quarantine laws as would have prevented a landing of the cargo and particularly the ballast and the sick and their contaminated bedding, and thus prevented the introduction of the disease in the city.

In reference to the prevention of the spread of typhoid fever, the following taken from the exhaustive article by Liebermeister in Ziemssens Cyclopædia of the Practice of Medicine, will well represent the good that may be done by the proper employment of preventive and prophylactic measures, " We are already familiar with a good many examples of what prophylactic measures can accomplish in the prevention of typhoid fever, and it is to be hoped that our knowledge of this will be greatly extended.

Properly speaking, the study and enactment of prophylactic measures belong within the domain of public hygiene or state medicine, and typhoid fever is one of the diseases best calculated to test the efficacy of any precautionary enactments that may eminate from that source.

It is more than important that the people should be instructed on this subject, in a great measure the checking of the extension of this disease lies in their hands, and on them as well as on the public health authorities, rests the responsibility of the diffusion of this malady.

To the physicians throughout the state also belongs the duty of instructing the people as to the mode by which this disease and even many others propagate themselves. How many of those who are so unfortunate as to have in their homes cases of typhoid fever, are aware of the fact, that it is held that the intestinal discharges of those sick with this disease; possess the qualities that enable them to diffuse it, in an almost unlimited degree among their neighbors? When these discharges are emptied into water-closets, privy-sinks, or buried, it is well known to those who have studied the subject that they may by percolation, infect wells and other sources of water supply; or as is contended by some, may by the diffusion of gasses, produce the like diseases in others, even at a distance from the source of infection."

That this is no vague and unfounded opinion is shown by the histories of many epidemics of typhoid fever.

A very instructive instance illustrative of these statements is mentioned by Liebermeister. A villager who had contracted typhoid fever at Ulm, returned to her native village, a place where typhoid fever had not existed for many years.

The excrement of this person was thrown on the dung-hill. Several weeks later five persons were employed to remove this dung-hill. Of these five, four were attacked with typhoid fever, and one with gastric symptoms and swelling of the spleen.

The excrement of these persons were burried deep in the dung-hill. Nine months later two persons were employed in completely removing this dung hill, one of them took typhoid fever and died of it. It is claimed that the poison of typhoid fever can retain its vitality for a long time, through the stage of development through which it passes outside of the body.

"If this be true and it comes with abundance of weighty authority, think of the sources of disease to be found in the ordinary mode of cleaning privy-vaults and disposing of their contents.

The measures recommended for preventing the spread of this fever are founded on the power of chemical agents to destroy absolutely the material which contains or carries the virus of such a communicable disease. Assuming it, therefore, to be certain that the intestinal discharges, are the media of propagating the disease, it is no less certain that by subjecting the discharges on their issue from the body to the action of powerful decomposing chemical agents, they may be entirely destroyed or deprived of their specific virus."

The following plain rules are laid down by Dr. Aitken:

1st. "All discharges from the fever patient, should be received on their issue from the body, into vessels containing a concentrated solution of chloride of zinc.

2nd. Two ounces of a caustic solution of chloride of zinc should be put in the night stool on each occasion before it is used by the fever patient.

3rd. All tainted bed or body linen should immediately on its removal, be placed in water strongly impregnated with the same agent.

4th. The water-closet should be flooded several times a day with a strong solution of chloride of zinc; and some chloride of lime should be also placed there, to serve as a source of chlorine in the gaseous form."

In reference to the dietetic and preventive treatment of scarlatina the same excellent authority says: "The diet of the patient should be light, nutritious broths and jellies. Fumigation will not it should be remembered, destroy the miasmata of a sick room; and consequently the doctrines of cleanliness and ventilation and of separation are as imperative in this disease as in small-pox. We cannot disinfect the wall of the chamber, nor the clothing of the patient, except by washing them, or exposing them to a dry heat exceeding the boiling temperature. In general then, the chamber where the patient has lain, should be also whitewashed and well scoured after the disease has subsided, before any person susceptible of the poison be allowed to sleep in it. Children are not safe until the desquamation of the skin shall have been thoroughly accomplished, till all the old cuticle has been removed, and till the skin has resumed its natural softness."

Therefore keep the patient in bed until convalescence is perfectly established; and subsequently on his being confined to his room or in a room whose temperature is not below 60° Fahr., until desquamation is completed. If the whole surface of the body is rubbed over once or twice a day, with common olive oil, or a solution of glycerine in water (one part of glycerine to three parts of water) the irritation of the skin will be soothed and the process of desquamation will be facilitated and as soon as the child has strength enough to bear it, he ought to have a warm bath every other night, in which he may be well rubbed over with oat meal or bran.

The particular questions immediately involved in the exposition which has been given of the nature of zymotic diseases in general and of the miasmatic order of these diseases in particular, is contained in the following statement, namely: that it is possible to extinguish the greater number of epidemic diseases, however intense or abundant may be the atmospheric or other agencies, which constitute their potential causes, by remembering; first, that the living body of the diseased person is the soil on which the communicable disease breeds the poison by which the specific disease is multiplied and propagated. Second, that excretions from an infected person especially such excretions as are immediately related to or flowing from the parts affected with specific lesions, probably contain the most active elements of the specific poison by which the disease may be disseminated.

Third, that such active elements, germs, poisons, miasms, gases or noxious agents may contaminate the drinking water of a district or may infect the atmosphere, or lie dormant for variable and unknown periods of time, just as seeds dry up and preserve their vital properties.

Fourth, to follow out zealously the hygienic measures which flow from these statements, and so prevent the propagation of specific diseases.

Fifth, to preserve as much as possible the blood of every individual in that state which shall prevent these poisons from finding the conditions of their development within the body.

Sixth, that these ends are to be attained on the one hand by preventing the production of fermentable matter in or out of the body; and on the other hand by promoting the removal and chemical destruction or decomposition, when it is inevitably generated, and by a free supply of pure air and the reduction of that air to the lowest temperature at which the condition of the individual also will allow it to be safely inhaled." Measures of precaution or of prevention and protection are equally proper for all classes, civil or military. But it is chiefly with regard to the poorer civil population, therefore chiefly in the courts and alley's of towns and at the laborers cottages in the country districts.

The great scope and variety of measures for the arrest and prevention of diseases, although of the highest importance and deepest interest, would increase this paper beyond proper limits.

I shall now call your attention to the following brief outline of a plan for the constitution and appointment of the State Board of Health, suggested by the very able report of Dr. Manning Simons to the State Society of South Carolina.

First, that the State Medical Society of the State of Indiana be constituted the State Board of Health for Indiana, (the same will apply to the other states).

Second, that the authority and powers conferred on the State society, be delegated to a committee of seven of the members of the society, appointed by that body, who shall represent them as the Board of Health of the State.

Third, that as soon as practicable after their appointment, this committee organize as a board, make rules for their government, appoint a chairman and secretary and proceed to divide the state into health districts. That they devise and mature a plan for the establishment of sub-boards of health in each of the health districts into which they divide the state ; that they appoint the members of the sub-boards; that they make provisions for the filling of vacancies from time to time as they may occur and assign them to duties. That such sub-boards consist at least in part, as far as practicable of members of the association, and a majority of the members should be physicians.

Fifth, that the collection and record of mortuary and vital statistics, should be a prominent feature of the State Board of Health, which should provide and distribute suitable blanks for the return of such statistics. That an effort should be made to devise some plan by which disease statistics may also be collected and recorded."

Art. 4.—Ophthalmia Neonatorum.

BY S. C. AYRES, M. D., CINCINNATI, O.

In the LANCET AND OBSERVER for January, 1876, I reported one hundred cases of ophthalmia neonatorum, observed in private practice and an equal number treated in the Cincinnati Hospital. I have now to add to that number fifty cases, from private and seventy-seven cases from Hospital practice.

Of the former, five cases (ten per cent.) were blind in *both* eyes when first seen, and eight cases (sixteen per cent.) were blind in *one* eye. Of these eight cases six had good vision in one eye and two had leucoma adherens. In both of the latter cases an iridectomy was successfully made, giving the patients a moderate amount of vision. The cornea was slightly infiltrated and hazy in three cases (six per cent.) but all of these did well and the cornea cleared up under treatment.

Ulceration of both corneæ is noted in three cases (six per cent.) and of one cornea in two cases (four per cent.) but all of these made a fair recovery. Macular cornea more or less pronounced remained, but there was a reasonable prospect of the corneæ becoming so clear, as to give the patients useful vision.

Leucoma adherens affecting one eye (the other one remaining sound), occurred in two cases (four per cent.), and in these there was a chance for an iridectomy in the future. In twenty-seven cases (fifty-four per cent), the corneæ were clear and intact when first seen, and these all make a good recovery no corneal complication arising during the course of treatment.

These fifty cases taken with the one hundred previously reported, show a total of 7.3 per cent. blind in both eyes, and 9.3 per cent. blind in one eye when first seen. Only 56.6 per cent. of the total number were free from corneal complication when first presented for treatment, but *all* of these recovered with good vision, no corneal complication supervening. This certainly is quite conclusive evidence, that if the other 43.4 per cent. had been seen in time, and properly treated, that they too would have recovered with good eyes. If this should not be sufficiently satisfactory, I will refer again to the results in the Cincinnati Hospital, where seventy-seven were treated during two years ending last March. Of the total one-hundred and seventy cases treated during the past six years, by Dr. Aub and myself, not a single one was lost, nor did ulceration of the cornea occur in any. With regard to the Hospital cases, I will say, that they presented all the ordinary symptoms of such cases, as they are seen in private practice, if observed at the same period. The difference in development and termination of the disease, depended entirely on the treatment to which they were subjected. In the hospital the treatment was commenced immediately without the loss of a single day, while those treated in private practice, were either in the hands of ignorant midwives and nurses, and not treated at all, or were subjected to irrational and inefficient treatment at the hands of the family physician.

In order to test the efficiency of the treatment in the hospital, experiments were made in this manner. Two cases of ophthalmia neonatorum, as nearly alike as possible were chosen. In one the ordinary treatment was carried out, while the other was allowed to take its course for a while. The result was, that while the former improved, the latter became gradually worse every day that treatment was neglected.

The result of these cases in hospital and private practice, goes to show quite conclusively, that if a proper treatment is instituted early, before any corneal complications have arisen, that the termination is invariably favorable. Are we not therefore compelled to blame either the midwife, or the nurse, or the physician for the unfortunate results, which we have recorded?

I append the treatment which was given in the former article.

The treatment of these cases, which is carried out almost entirely by the internes under the supervision of the attending oculist on duty, is with little variation as follows:

The eyes are cleansed every hour or half hour, or even oftener in cases where the discharge is very profuse, by gently separating the eyelids with the fingers and removing the accumulated pus with a soft rag or camels hair brush. A solution of alum, gr. ij. ad. aqua ʒss. or of argent nitr, gr. ij. ad. aqua ʒi. was dropped into the eye every hour or two.

Cold compresses are used in many cases. They are generally well borne and are gaateful to the little patients. They must be changed frequently in order to accomplish any good, but care must be taken in delicate children not to abstract too much heat.

Every morning the eyelids are everted and brushed with a solution of argent. nitrat. grs. v. ad. xx ad. aq. dest. i℥. according to the severity of the case, and the lids washed off with tepid water. Unless the swelling of the lids mechanically prevents it, the cornea is inspected *daily* in each case. As the case improves the interval between the instillations of alum and argent. nitrat. is continued in a weaker or stronger solution, until every trace of the disease has disappeared.

The greatest stress is laid upon the thorough cleansing of the eye in the acute stages of the disease, and this is attended to, not only by day but by night.

To this part of the treatment, do we owe the immunity of the cornea from ulceration. The pus is neutralized or coagulated by the action of the nitrate and of silver alum, and its corroding effects thus prevented.

Another important point in hospital treatment is that the cases receive attention *immediately*, the slightest swelling of the lids is noticed and the severity of the disease is probably thus diminished.

When the lids are very much swollen their eversion is an easy matter. Slight pressure with the tip of the index finger, upon the lid near the edge of the orbit, will generally suffice, or a probe or the handle of a camels hair brush may be used instead of the finger. As the lids get thinner their eversion is much more difficult. Then it is better to seize the ciliæ between the index finger and thumb, or, the loose skin near the margin of the lid, and draw it a little down and out from the ball, and at the same time make pressure upon the upper edge of the tarsus, which if properly directed easily everts it.

The best plan is for the operator to lay the child across the nurses lap and take its head between his knees, after first protecting them with a towel. In this way he can control the motion of the child's head most easily, and make the applications most effectually."

Art. 5.—Urticaria or Nettle-Rash.

BY H. CUNDELL JULER, M. D., Cincinnati, Ohio.

Nettle-rash or Urticaria is the most fantastic of the diseases which attack the skin. Round, oval elevations or oblong in form like the vibices following the sting of a whip-lash, appear upon the surface of the body. These ephemeral elevations differing in size as well as in shape, have white prominences rising from a red or pinkish base and are attended with a hot, stinging, itching sensation. Their resemblance to the pomphi produced by the common nettle, the *urtica urens*, has given to the eruption its distinctive appellation.

In this strange, hyperemic disorder the pearly elevations come usually with little or no warning; they attain to full growth in a few minutes and disappear as suddenly as they came into existence — leaving behind them no evidence of their recent visit. There is not a part of the body from scalp to heel that can claim immunity from the attacks of urticaria. The eruptions manifest no particular preference for any special part of the body, but appear and subside like the rising bubbles on the surface of cold water when the vessel containing it is first placed upon a fierce fire, or they beam suddenly in sight upon the skin like stars bobbing in and out from the clouds on a murky night; having excited observation in one part of the body, they fade suddenly from sight and again show themselves in some distant region. No sooner is treatment devised than probably the wheals have disappeared, and after a more or less extended absence return again and re-commence their fugacious antics. Thus the disease may confine itself to single visitations or it may be intermittent, or the death of one crop of wheals may give birth to a fresh accession not far distant from the primary eruption; or while one cluster is stationary other elevations may come and go, on different parts of the skin.

By a singular caprice the disease readily seizes upon some persons, while no exposure or imprudence on the part of others, can provoke its attack. The mere scratching of the skin with the nail or a pointed instrument is sufficient in some instances to leave a red line or give rise to wheals in its trail.

The exciting causes of the disease in the predisposed are manifold and varied, external influences may alone be sufficient as variations in temperature, the sudden transition from a warm to a colder climate, the walking from the heated work-shop or ball-room into the open air, the chafing of clothing in the folds of the skin, the irritation caused by the contact with flannel or wearing the wrong kind of clothing, or the eruption may be occasioned by the stinging nettle, the hairs of certain caterpillars, or the contact with the leaves of the rhus toxicodendron (Niemeyer), or particular mollusca, as the jelly-fish, or the presence upon the skin of the itch acarus. Various insects as fleas, bed-bugs, mosquitoes, gnats, midges, spiders, etc., may by irritating the nerves give rise to the disease.

Urticaria may be the result of a nervous reflex action and may be caused by exciting the gastro-pulmonary, genito-urinary or intestinal mucous membrane. The affections of the skin and of the internal lining membranes or viscera are to a great extent vicarious of each other, particularly in those liable to attacks of this disorder. The internal lining membrane of portions of the alimentary tract as well as the skin may give evidence of the presence of urticaria. The eating, by some persons, of certain articles of food, especially pork meat, oysters, lobster-salad, mussels, crayfish, clams, crabs, prawns, cockles, winkles and other shell-fish may give rise to an acute attack of urticaria with considerable fever and swelling of the head and throat. Milder forms of the disease may be produced by other varieties of food, as some kinds of fish, especially when smoked, dried or salted, cucumbers, mushrooms, eggs, nuts, bitter-almonds, oatmeal, rice, raspberries, some-kinds of strawberries, beer and coffee. I have now a patient under treatment and she knows of others in whom the disease followed the eating of buck-wheat cakes. Among medicines that have the reputation of awakening the disorder in the predisposed, we have valerian, bark, henbane, turpentine, iodide of potash, copaiba and the cubebs-pepper. It may arise from the sudden cessation of some customary discharge and in children from the presence in the bowels of worms or vitiated mucus.

The sudden suppression of urticaria is known to have given rise to internal disorders as vomiting, diarhœa, and even apoplexy.

Persons in danger from this cause have not infrequently been advised to eat meat pie and drink brandy and water with the object of re-establishing the disease upon the skin by exciting nervous reflex action ; when these have failed, mustard has been applied, or the skin has been rubbed with croton oil or some stimulating liniment.

It is claimed that the primary irritation in urticaria may exist in any organ or viscus supplied with the sympathetic nerves, and in this manner its occasional presence is accounted for in pulmonary, gastric, hepatic, renal, vesical and uterine disorders. It is found occasionally associated with gout, rheumatism, uremic poisoning as well as with various conditions of the fluids of the body. In women who seem more prone to the disorder than men, it is found often allied to a highly wrought sensitive condition of the mind, being a disorder most intimately connected with the nervous system. The excitement of society, the indulging in strong emotions and passions, excess in wine, fatigue, attending and watching by the sick, depression from anxiety or grief, menstrual irregularities, organic or functional disorder or irritation of the uterus, the wearing of pessaries and the condition of pregnancy, are each liable to cause urticaria. It may also be found accompanying spinal irritation, neuralgia and asthma.

The disease is more prevalent in the spring and fall of the year. In some conditions of the atmosphere it may become epidemic. At such times it is a common complication in all prevailing diseases of the skin, indeed not unfrequently it is mistaken for the primary disorder, many cutaneous affections as scarlatina, small-pox, erythema papulatum, prickly heat, have been so mistaken ; when doubt exists, urticaria if present, will arise responsive to irritation of the skin to correct the diagnosis.

That the appearance of urticaria should be due to one or other of the many causes thus assigned, clearly demonstrates its neural origin, even Dr. Tilbury Fox, who in February 1864, when replying to my dissertation, read before the Harveian Society, of London, entitled " A New Theory as to the Causation of the Diseases of the Skin," claimed to belong to the humoralists, while he relegated me to the neurologists, now he says : " It is very difficult to explain the exact agency by which wheals are produced. It is clear that the nervous system plays a very important part and particularly the vaso-motor nerves."*

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* SKIN DISEASES. 3rd Edition, 1873, page 118.

The researches of Stilling in 1840, when he directed the attention of the profession to a class of nerves which he designated the vaso-motor, were followed by those of Claude Bernard in 1851 and 1855, and those of Brown Séquard in 1852. These gentlemen proved by experiments, that these nerves following the course upward of the anterior roots of the spinal nerves, were connected with the cerebro-spinal axis and by the great sympathetic with all the organs and blood-vessels of the body. In that state of nervous depression which is usually the forerunner of the disease under consideration strong emotions or mental excitement may through the cerebro-spinal system affect the ganglionic system and we may have in this connection some functional disorder of the stomach, liver, kidneys or bowels and, if a female, the uterus. In this manner a reflex irritation is awakened on a corresponding part of the spinal cord and from thence some incidental peculiarity may direct the morbid action to the bloodvessels constituting the papillary plexus of the skin. Thus derangements of the viscera, induced by gross feeding, crude ingesta, etc., or vascular excitement of the uterus in menstruation and pregnancy, or affection of the glandular organs, may produce a reflex irritation on the arterioles of the surface and a turgid condition of the papillæ. In certain persons the vascular system is more delicate than in others, the smaller vessels more fragile and instead of vascular excitement causing ruptures of the venules, we may have, as in urticaria, effusions of serum. The nervous system, in some persons is so morbidly sensitive to peripheral impressions, that the slightest exciting cause gives rise to nervous reflex phenomena the mere excitement of the doctor's visit may lead to the development of wheals upon the skin of his patient. In this state of abnormal nervous activity, rather than nervous depression, any exciting cause as uterine irritation, exposure to cold, improper food, mental fatigue or anxiety is sufficient to cause urticaria, and it being a neurotic disease there is a probability of its recurring at frequent or stated intervals.

It is well to remember in the treatment of this disorder, that the blood, which comes in contact with peripheral nerve tissue may in certain disorders or conditions of the system, eliminate oxidized effete or abnormal products which proving a source of irritation may give rise to the urticarial eruption.

In explaining the manner in which the wheal in urticaria is produced, we must bear in mind the very intimate relationship which subsists in the nervous and the vascular arrangement of the skin. In 1840 Henle demonstrated in the smaller arteries the presence of "contractile muscular lamellæ," which ceased to exist as these vessels merged in the capillaries. The vaso-motor nerves have been shown by Dr. Beale as very minute nervous fibres ramifying upon the so-called "muscular arterioles" and the capillaries. There are also nervous ganglia distributed around these vessels.

When an irritation is produced either directly or by reflex action upon these peripheral nerve fibres paresis takes place and with dilatation of the vessels, which follows contraction, a flow of blood floods the capillaries of the part and an increase of temperature or a sense of burning is the result. It is probable that a spasmodic contraction alternating with dilatation takes place in the muscular arterioles, but the gorged capillaries being without muscular cells to contract upon their contents, lymph or serum is poured out among the cells of the rete malpigii. The form and extent of the wheals correspond with the area of peripheral nervous excitement. This effused material being enclosed by unaffected tissue, like pus in a furunculus, projects above the surface and a sense of hardness is conveyed to the touch, we observe, therefore, that urticarial eruptions are usually hard, white elevations surrounded by pinkish borders and the efflorescence which may accompany the eruption indicates the extent to which the peripheral nerves supplying the capillary plexus are aroused by the pressure of serum. Neumann has found when an excised wheal was submitted to the microscope "marked œdema of the tissues with a diminution in the supply of blood."

Persons liable to attacks of urticaria are apt to have an excess of uric acid in the blood and a deficiency of red corpuscles When such a condition is present, the disease is likely to be preceded by œdema of the joints. When the excitement of peripheral nerve tissue has been allayed, the watery element of the blood which has been effused, in these cases is quickly re-absorbed and the neighbouring capillaries being relieved of their gorged condition, rapid subsidence of the wheals takes place.

When the disease assumes an acute inflammatory type, we may have acute relapses following one another at short intervals.

The names given to the varieties of urticaria are intended to convey to us either the nature of the symptoms accompanying the disorder, the duration of the attack, the exciting cause, the shape of the pomphi or the nature of the other diseases of the skin with which it may be combined. These several varieties shall be named in the passing, but for all practical purposes — acute, chronic, and mixed urticaria, would include all forms of the disease.

Acute Urticaria.

When urticaria follows almost immediately upon direct irritation of the skin it is attended with scarcely any constitutional disturbance, but when the eruption comes to the surface as the reflection of some internal disorder it ushers in an acute attack.

Urticaria febrilis has prodromic symptoms and these may be of so grave a nature as to lead to fatal results. Usually, acute urticaria is occasioned by an error in diet (*urticaria ab ingestis*). The disease is heralded with fever, dryness of the tongue, thirst and irritability of mind with sleeplessness. The fever increases and is accompanied with vomiting, headache, delirium and redness of the conjunctivæ. Efflorescence suddenly makes its appearance upon the face, followed by the eruption of wheals upon the forehead, ears and nose, attended with much swelling, which greatly disfigures the head and obscures the features. The ears, nose, eyes, and lips are tumid and burning hot and tingling. The mucous membrane of the throat becomes swollen and this condition extends to the mouth and down into the larynx. The tongue is swollen, the fauces constricted, a sensation of pricking in the throat is experienced, and a troublesome cough may ensue and the voice is altered, violent vomiting and diarrhœa may supervene. In the space of an hour the whole body or merely the head, trunk or the extremities is invaded by the disease. On the face and head the eruptions usually remain discrete but upon the trunk they coalesce to such a degree as to form large wheals often exceeding in size the palm of the hand. When wheals are thus packed together the disease assumes the name of *urticaria conferta*. The wheals are capricious. As the disease spreads from the trunk to the lower extremities, the severity of the symptoms abate. When the disturbing element has been removed a rapid subsidence in the symptoms takes place. In the course of twenty-four hours as the cutaneous elevations disappear, convalescence commences. There soon remains nothing to mark this violent upheaval of the superficies of the body but slight desquamation, due probably to the external remedies that were applied.

Chronic Urticaria.

In the acute form of urticaria relapses are exceptional, but sometimes the acute form merges into a chronic condition, the disease becoming persistent especially upon the limbs (*urticaria perstans*).

Chronic urticaria may be hereditary, but is usually indebted for its primary appearance to exposure to sudden changes of temperature, to debauchery or imprudence in the selection of food, to exhaustion of manly vigour by sexual indulgence, to sudden emotion or unusual excitement, to violent exercise in the sedantary, and in females to menstrual and uterine troubles, while in children its existence has its origin in intestinal irritation, acid secretions, vitiated mucus, worms, etc., or to dentition or irritation of cutaneous nerves by dirt or insects. If the disease is once established, it is likely to assume an intermittent, or periodic character. The slightest exciting cause now insuring its appearance. Mr. Erasmus Wilson, in speaking of a patient affected in this manner says: "I have watched the red wheals appear and creep along the skin and disappear while I purposely engaged her in conversation on different subjects. A word, a look, the slightest excitement would immediately bring out a copious eruption."* I had a patient recently of a sanguine temperament, with a thin and irritable skin, who was visited monthly by urticaria preceded by swelling of the wrists and ankles. A slight scratching with the nail would be sufficient to awaken the eruption. On one occasion witnessing an animal in pain the *arectores pilorum* muscles coming suddenly into action gave rise to *cutis anserina* and this condition was followed by the appearance of urticaria. The eruption was accompanied by rubefaction of the part and was very fleeting in character.

Urticaria Evanida.

Young persons will sometimes complain of experiencing, painful pricking, fleeting sensations along the limbs and the same character of sensations, with swelling in the face and hands after ablution. Willan calls this *urticaria subcutanea.*

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* DISEASES OF THE SKIN. 5th Edition, page 150.

Bilateral urticaria is frequently seen by the accoucheur. It is of common occurrence in uterine irritation and its appearance is often the precursor of the menstrual flow. It is not infrequently observed during pregnancy. It is attended in a varying degree with headache, oppressive feeling in the chest, cutaneous pains and insomnia.

The shock that may be produced by an operation upon a sensitive person is frequently followed by the appearance of urticaria.

The nervous depression which is the predisposing cause of urticaria may be constitutional or acquired. It may therefore be hereditary or alternating with some other form of disease.

The air sometimes contains an excessive amount of vitalized oxygen or ozone and when a person is brought suddenly from the impure air of the city into such an atmosphere, he may have a few fleeting symptoms upon those portions of the wrists and neck uncovered by clothing. Once in my lifetime while in transit from London to Aberdeen, I was attacked by the disease from this cause. The ingestion of cod-liver oil which they sell there by the gill,* fresh drawn from the liver, secured me from its recurrence.

Bathing under certain atmospheric influences may give rise to urticaria, I select one such case from my note book. A sturdy male adult, whose, skin although not of immaculate whiteness was in a healthy condition, and he in a state of robust health was bathing in a river. He had near the left groin an irregularly shaped yellowish-colored mark in which his fancy saw the outlines of a rabbit with head and limbs sharply defined. He had a similar discoloration upon the skin of the right limb. Sunning himself, while in a state of nudity, with an east-wind prevailing, he suddenly started from his prone position, imagining himself stung by a nettle. A bright scarlet efflorescence had made its appearance upon the buttocks and gradually diffused itself over the entire body. This blush of vascular turgescence was soon accompanied by the ecchymomata of urticaria. He had the characteristic superficial irritation but without any obvious constitutional disturbance. After again covering his body with clothing the wheals subsided and the skin quickly resumed its previous normal condition. Sometimes the slight shock imparted to the skin of the anæmic by cold water may give rise to considerable œdema with pruritus. The swelling of the face, hands, wrists, feet, and ankles may subside in a day or two and be replaced by the urticarial eruption. (*Urticaria œdematosa*).

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* One quarter of a pint.

In certain conditions of cutaneous nerves urticaria may be produced in those not at all predisposed to the disease, such an instance is the following: While officiating in connection with Mr. Thos. Hunt, at the London Dispensary, for Diseases of the Skin, a lad named William Smith came under my treatment suffering from a long standing case of scabies. The vitality of the skin had been reduced by the presence of dirt and the acarus scabiei, in consequence of which the irritability of the nerves was augmented. By the application upon the skin of inductive electricity I was able by means of the electrode to trace upon any part of the body factitious urticaria, appearing upon reddened streaks as fancy shaped the lines. Experimenting, however, too long with electricity, fever was engendered which for some days engaged my attention.

The patients that usually come in the crowd of sufferers with cutaneous disorders complaining of urticaria are mostly similar in character to the following:

Mary H. æt. 15, whose general health is excellent has had the disease more or less since birth.

Minnie T., æt 40, has suffered from the affection for nine years. She has been nursing ten months and the infant is likewise affected by the disease.

Edwin P., æt 23 a confirmed dyspeptic, of anæmic appearance, has had the affection nine months.

Henry B., school teacher, having a cadaverous, wasted appearance, has been troubled with general urticaria for three months. He complains of a pricking, itching, smarting feeling on his body and limbs. He is always much worse about two hours after meals and his symptoms are aggravated by the heat of the bed.

Annie H., æt. 20, complains of general weakness, palpitation and a profuse discharge of the whites. She has suffered one year from urticaria associated occasionally with herpes.

Ann McNay, æt. 45, with fair health, but of very excitable temperament had been afflicted seven months by the disease.

The itching of all cutaneous affections is worse at night, owing to the fact, that when sleeping the mind is off guard and the brain relieved of most of its blood. The vaso-inhibitory nerves that restrain the capillaries and antagonize the sympathetic nerves, whose function is to dilate the arterioles, are to a great extent uncontrolled by the cerebro-spinal system. In consequence of this ganglia, the citadels of nerve force have an unusual dilating power over the arterioles and more blood is thrown upon the skin. This proves a sufficient excitant to the already morbidly sensitive nerves.

Urticaria Tuberosa.

This is rather a rare form of the disease. Those cases which I have seen have been in persons whose constitutions appeared weakly. I have known it to follow immoderate exercise and the ingestion of ice-cream with the perspiration suddenly checked by cold air. The patient wakes from his sleep, complaining of headache, uneasiness in the epigastrium and fever. These sensations are soon followed by a feeling of tingling and pricking and the formation especially upon the arms and limbs of hard, hot colorless elevations some what resembling porcelain in appearance (*urticaria porcellana seu alba*), and often exceeding a turkey's egg in size. They usually disappear before morning "leaving the patient weak, languid and sore, as if he had been bruised or had undergone much fatigue.

The following case is selected as an instance of the disease as it commonly shows itself. James Bevan, æt. 19, of a sturdy build, short stature and of a pale countenance, having a languid manner of speaking and moving came under my treatment Nov. 11th, 1874, complaining when heated of the frequent appearance upon his skin of white swollen lumps accompanied with much irritation, but subsiding as the body again became cool. He states that he works at a blacksmith's forge, lives a regular life, and has sufficient food. He was sickly when young, but has since been in good health with the exception of his present trouble. The affection first made its appearance Jan. 1st, 1874, with a severe chill, which he thinks resulted from being overheated at a ball. The eruptions first came upon the abdomen and subsequently upon other parts of the body, as well as the extremities. They show themselves mostly on those parts of the surface left uncovered by flannel and are now visible (Nov. 11) on the under and inner portions of the left thigh. The elevations vary in size from a walnut to a full sized orange. When the eruption disappears it leaves in its place a large number of irritable red pimples. Since he was first attacked by the disease, he has never been free from it longer than three weeks at one time. The irritation occurring at night time had been so severe as to deprive him of rest and for a week at a time disabled him for work. In the morning when the eruption retroceded he experienced a pain in his head, throat, joints and back, and a sense of soreness and prostration as if he had been over-worked or beaten.

When starting from his home near Warsaw Pike, to visit me for the first time, he was prevented from putting on his cap by the sudden appearance of a large lump upon his forehead. A swelling of a similar nature had appeared already upon the wrist of the right hand. When I saw this youth the tubers had disappeared leaving upon the forehead a pearly-white disc the size of the back of my hand surrounded partly by the remains of a bright red border. His right hand was swollen to the extent of preventing him from flexing it.

Dr. Tilbury Fox * mentions the case of an elderly man who had a combined attack of the evanida, perstans, and tuberosa forms of urticaria. "The tongue was suddenly swollen so as to almost fill the mouth, the eyes were closed, the face puffed-out on one side, the scrotum and penis became enormously œdematous and tuberose patches of urticaria showed themselves about the arms or the legs." The disease commenced with dyspepsia and terminated in apoplexy.

Mixed Urticaria.

I include under this heading those forms of the disease that obtain their appellations from the fact either that there is an excess of serum or that other products besides serum are contained in the pomphi. These forms of the affection are *urticaria papulosa* or *lichen urticatus*, *purpura urticans* or *urticaria hæmorrhagica* and *urtica bullosa*. In the first is a deposit of lymph in the second form an effusion of blood and in the third form such an excess of serum that we have blebs or bullæ rather than wheals.

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* Diseases of the Skin, 3rd Edition, page 119.

Urticaria Papulosa.

In the nursery or in overcrowded dwellings we frequently encounter especially among ill-tended and ill-nourished children under two years of age a form of urticaria where papules the size of a pin's head or split-pea have taken the place of wheals. A plastic material occupies the place once filled by serum. This mixed form is known by the name of *lichen urticatus* or *urticaria papulosa.*

These papules may appear in clusters upon the buttocks, the thighs, upper arm and face. The eruption is attended with erythema or rather hyperæmia of the skin and considerable itching. The smarting, burning, itching character of the eruption usually awakens the child if sleeping, and it continues restless and crying till daylight appears. If the patient succeeds in reaching the part affected there may be observed small spots of dried blood upon the papules, resulting from the apices having been wounded by the nails.

If the disease arises from the irritation of dirt or from the bites of the phtheiriasis corporis or other insects or is due to other sources of irritation as contact with urine, etc., an early cure will depend upon our success in destroying and allaying the poignantcy of the bites of insects and in maintaining a healthy and cleanly condition of the cutaneous surface. If the disease is referable to nervous reflex action resulting from dentition or gastro-intestinal irritation with acrid secretions it may be preceded by slight fever or vomiting. In that case the disease unless relief is quickly obtained may become chronic and owing to the establishment of a hyperæsthetic condition of the peripheral nerves, the eruption may assume a pruriginous character, erythematous spots without wheals or papules may rapidly disappear and reappear on various and distant parts of the body. The disease once established after this fashion, may be difficult to cure, because both general and local treatment must be conjoined to secure that desideratum.

If a woman brings to you a sickly looking baby from an overcrowded dwelling and says that the child is tormented at night and kept awake by incessant itching; that during the day the red and white spots that showed themselves in the night time have disappeared, we have before us a case of lichen urticatus. Diagnosis will be assisted by discovering upon the body, hard inflamed papules, that may be excoriated and very irritable. If the disease be of long standing these red pimples will impart to the hand when drawn over the skin a rough, uneven feeling.

Erasmus Wilson gives a very interesting instance of this in these words: "A little girl three years and a half old, delicate but healthful in her functions, has been subject to an eruption attended with itching, since the age of ten months. In January, 1846, she had measles and since that period the attacks of the cutaneous disorder have been more frequent. The eruption shows itself in the large red pimples, generally isolated, but frequently in clusters particularly on the face, neck and shoulders. The pimples are excited by warmth, for example, by the warmth of bed so that she is sometimes awakened in the night by the itching. They are also excited by mental emotion, thus, if she be scolded, the itching begins, and to use her mother's expression, she can at all times "rub them up whenever she likes." When left to themselves the pimples subside in the course of twenty-four hours, but when scratched, a little blood oozes from their summits and desiccates into a small black scab. On some of the pimples a little pus forms at the points and on the soles of her feet they run into a vesicular form [*] each pimple when it does not subside at once continues for about a fortnight but as fresh ones are continually appearing the eruption has now been prolonged without amendment for three months," [†] this child not having experienced any relief after several weeks treatment was sent into the country.

Hives.

In the eruption known to parents as hives, the child suffering from the affection has usually been weakened by a heated relaxing atmosphere and the presence of capricious wheals is more often seen than fugacious papules. In hives the elevations more frequently assume an oblong shape having a bright red color with a projecting central portion that may be of a whitish or bright red tint. This affection is of a mild discrete nature. The crying of the child usually leads to the loosening of the diaper by the nurse and the discovery of the cause of the child's fretfulness. Urticaria in its uncomplicated form is never dangerous. Dr. Tilbury Fox, in the glossary to his work on Diseases of the skin defines hives as "the popular name of chicken-pox." It is not confounded here.

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[*] If vesicles appear here and there from the papules it is called *U. vesiculosa.*

[†] WILSON, Diseases of the Skin, 5th Edition, page 151.

Urticaria Purpurea or Urticaria Hæmorrhagica.

Some persons having a purpuric tendency or too little fibrine in the blood or from some other cause may have any effusion of the blood in any skin disease of a hyperæmic character. When this condition is attended with burning and itchiness at night, and having withal an eruption of a fleeting character, it constitutes what is termed *urticaria purpurea* or *urticaria hæmorrhagica.*

The disease may appear upon the limbs of a stalwart individual addicted to whisky drinking, but more often and generally it attacks the enfeebled, the aged, the ill-clad and uncleanly. I was summoned by a physician to a hotel in this city, to see a child suffering from this disease. The affection had attacked the mouth and throat as well as the skin, I learned subsequently that the child died. Either a series of dark purplish spots may appear with the wheals of urticaria or the cuticle is more extensively separated from the papillary layer giving rise to a broad flat tumefaction of the skin which resembles the wheals of nettle-rash.

When the purpuric dyscrasia exists the blood globules that have escaped from the capillaries will pass to the surface by means of the sudoriparous openings on the skin. The reddened surface upon which the blood oozes remains and this is called *urticaria hæmorrhagica* and displays the usual characteristics of nettle-rash.

Diagnosis.

Bearing in mind the evanescent character of urticaria, the suddenness with which the disease shows itself, the attending irritation as tingling, itching and pricking which gives the patient no rest, the irregular shape and stretched appearance of the eruption—being similar in character to that produced by a nettle—and withal the presence of gastric disorder or functional disturbance, and the ready method by which wheals may be invoked to decide the question: urticaria would appear to be a disease easy of diagnosis, yet I have seen quite able men considerably puzzled in deciphering urticaria, especially when complicated with other disorders. A gentleman of intelligence in the profession summoned me recently to see a case of erythema marginatum that had presented very anomalous symptoms and was thought to bear a strong resemblance to urticaria purpurea. A youth about twenty years of age, of strong build and sanguine temperament was seized about ten days before I saw him with eruption upon his limbs. He now complained of a sore throat and the bowels were inclined to be loose, the temperature in the mouth was 102°F. and pulse 70. The disease of the skin was symmetrical and general in its distribution. The elbows were reddened by papular eruption and their inner surfaces presented patches the size of the hand having yellowish-colored centres and red, slightly raised borders. It also showed itself upon his knees and toes. The body, back and thighs were very red and presented a singular appearance. There were irregularly formed, slightly raised patches, which owing to the white centres and the peculiarly in-and-out direction of the red borders suggested to the fancy the outlines of a map showing the divisions of countries and the course of rivers, with white discs the size of silver quarters surrounded with red edges distributed, like islands upon the surface of the skin. Two days subsequently I again visited the patient. The eruption had disappeared but a yellowish stain remains upon the skin, pressure, however, with the finger caused a reappearance of the erythema. The temperature was 103° F. the frequency of the pulse by raising him in bed was increased from seventy to ninety-four pulsations in the minute. He complained, on being lifted, of general pain and stiffness. There was some jactitation of the limbs, and when roused he quickly relapsed into a dreamy, half conscious condition. During the attack, he complained of neither heat nor itching of the surface, the disease had been persistent and the eruption was of a papular character. In erythema papulatum we have primary papules and neither wheals nor itching. *Erythema fugax*, when it suddenly seizes upon the face, giving rise to considerable tumefaction, is sometimes mistaken for nettle-rash, especially when the cause is traced to improper food.

Erythema nodosum consisting of egg-shaped elevations which I have seen appearing most frequently upon the lower extremities is liable to mislead at first sight, but the oval shape, the greater prominence, its persistency and the absence of itching; should prevent erythema nodosum from being confounded with urticaria.

Lichen urticatus is to be distinguished from the mere papules produced by the body-louse or bed-bug by observing with a lens whether the dark specs are the dried clots of blood effused after scratching that are found interspersed with lichen urticatus, or whether the black crust of blood when removed shows the minute aperture formed by the thrust of the *haustellum* of the phthsiriasis corporis. In the latter case the parasite or its eggs may be found in the folds of the clothing. Dr. Tilbury Fox, at page 124 of his work already quoted, enters particularly into the consideration of lichen urticatus, and its diagnostic features.

Urtica Bullosa may be confounded with *pemphigus pruriginosus.* The bulla of pemphigus is first a wheal and rises upon a red base over which it ultimately extends. Hebra says: "Sometimes a circumscribed light red spot appears perhaps the size of a bean or large coin. This is paler in the centre and may even present a tinge of white, indicating the point at which the blot is to form and from which it will spread outwards over the surrounding red surface. In other cases the spot besides being red is raised above the level of the surrounding skin and in fact is at first a wheal passing afterwards into a bleb." Those cases I have seen, and pemphigus is a very rare disease, resembled in appearance a coat of mail. The blebs were of a yellowish color, rising abruptly from the surface with a clearly defined margin and left greyish scabs behind them. The arrangement of the vesicles and absence of severe itching should be sufficient to distinguish hydroa or herpes iris from *urtica bullosa.*

Urticaria has been confounded with lichen, prurigo, impetigo, roseola, rubeola and variola. It seems that such mistakes might in all cases be avoided if the physician while keeping in view the chief peculiarities, distinctive of each particular disease would apply the six-fold test of urticaria, namely, the suddenness of its appearance, its evanescent character, the cuticular sensations accompany it, the distinguishing marks of the eruption, the gastric disturbance and finally the tendency of the disease to be evoked by slight cuticular irritation with the nails.

Treatment.

In the treatment of urticaria we have to consider:

1st. Whether the disease is referable to internal irritants exciting the alimentary canal.

2nd. Or to external causes exciting a morbid action in the peripheral nerves of the skin.

3rd. Or to the inefficiency of the receiving organs to maintain the blood in a healthy condition.

4th. Or to atmospheric causes.

5th. Or abnormal action awakened in some special organ of the body, giving rise to urticaria, by nervous reflex action. I am inclined to believe that the disease is rarely, if ever idiopathic, and when it is impossible for us to detect any existing cause for its appearance, we shall be able to trace its introduction to a cause since removed. The disease being once established becomes self-propagating by reason of a hypersensitive condition of the cutaneous nerves.

Having once ascertained the cause, the merest novice in the practice of medicine should know what measures are necessary for its removal, although the most learned physician cannot foretell the time needed to effect that purpose.

Curing urticaria, however, often includes a much greater undertaking—a life-long habit of swallowing food without mastication has to be corrected, a propensity of ravenously selecting the most incongruous materials at table when nutritious food is indicated, must be checked—a dyspepsia of long standing with its collateral consequences has to be cured, change of scenery may have to be enjoined, habits of life reformed and the mentally depressed, pale-faced sufferer has to have the mode of life and bodily condition wholly changed.

If the cause of urticaria is traceable to external irritation, the skin must be cleansed and soothed by alkaline baths and emollient applications. This treatment is also applicable in chronic urticaria irrespective of its cause.

Baths may include various ingredients, an ordinary bath for an adult usually contains about thirty gallons of warm water of the temperature of 90° to 98° F. and may require for its medication carbonate of soda and bi-carbonate of potash, three ounces of each, or of sulphate of potash four ounces, or of hyposulphite of soda one ounce and sulphuric acid one drachm. Baths may be made emollient by first boiling some starch, bran or gelatine in water and adding the same to the entire quantity of water.

This class of baths is particularly useful in cases of urticaria that we have reason to believe depend upon abnormal conditions of the blood as in gout, rheumatism, or in some forms of renal or uterine affections. Arsenic, like carbolic acid and corrosive sublimate, is very destructive to low forms of life, and, when a parasiticide and nervine sedative are wanted in combination, a bath may be compounded by adding to thirty gallons of warm water arseniate of soda twenty grains, and carbonate of soda four ounces.

A very soothing effect may be obtained by adding about two drachms of conium to an emollient bath containing one pound of starch. This may be needed where great irritability accompanies the disease. Acid baths are also of use in urticaria. They are particularly useful in urticaria accompanied by torpor of the liver, atonic dyspepsia or diarrhœa. They are useful in cases where we have a relaxed habit and inactive skin or where there are anæmia and constipation.

The bath is prepared with the usual quantity of water in a wooden tub by adding of nitric acid one and a half ounces and of hydrochloric acid one to three ounces. The patient is usually instructed to remain in these baths from ten minutes to half an hour. I am led to believe that under the influence of warmth, exosmoses and indosmoses take place in the skin and the nitromuriatic acid is thereby distributed to the capillary system combining chemically with effete material that has not been extruded by the liver or the depurating uterus. This being borne from the system the peripheral nerves in time recover their normal action and the patient is cured of the disease.

The vapour bath may be improvised by seating the patient upon a cane-bottom chair, under which the steam of hot water is ascending from one of Lee's lamps or a red hot brick thrown into hot water. His feet are to rest in a small tub containing warm water, his body from the neck downwards and the chair are enveloped in a wide spreading blanket. The temperature should range from 100° to 115° F. After taking the bath Dr. Tilbury Fox, recommends that the skin shall be lubricated with oil or calamine lotion. The vapour bath is useful when an sudorific and derivative are required.

When a sufferer from chronic urticaria has neither disease of the heart or nervous centres, or is not predisposed to headaches or faintings, or is neither pregnant or menstruating, then a Turkish bath may be recommended with considerable confidence in its proving beneficial. The danger is, as I have witnessed, of the brain becoming affected, followed by a lowering of the circulation and enfeebled nervous power. To guard against this danger the temperature of the bath should not exceed 165° F. (varying from 120 to 165° F.) and the patient should not remain in the calidarium more than from 40 to 60 minutes and not for so long a period if the sensation does not continue agreeable. The object of a hot air bath is of course to increase the circulation and by inducing a free perspiration, deplete the capillaries of their serum, relieve their engorged condition and so by allaying nervous peripheral irritation cure the urticaria. When the skin is not only very irritable, but remarkably florid as in *urticaria ab ingestis*, as in a case I call to mind due to eating buck-wheat cakes, then we shall fear exciting the vascular action of the skin still further by the application of heat to the surface and prefer smearing the surface with cream or dusting it with potatoe starch or flour. In children having acute urticaria much relief is obtained by the application of a warm lead and opium lotion, or while administering *small* doses of Fowler's solution or antimonial wine and tincture of aconite, smearing the body with an emulsion of bitter almonds containing the sixth of a grain of corosive chloride of mercury to the ounce.

Much relief has been obtained in urticaria by sponging the eruption with acid lotions composed of acetic, nitric, sulphuric or hydrochloric acid in the proportion of two drachms of the acid to eight ounces of the water, or by rubbing the surface with a sliced lemon. Those acids applied topically will check the perspiration, which is an acid secretion. As they give rise to slight irritation and redness of the skin their curative effect may rest upon the principle expressed by Shakespeare in his play of Romeo and Juliet:

> "One fire burns out another's burning,
> One pain is lessen'd by another's anguish."

If the cause of urticaria shall be traced to atmospheric influences as sudden change of temperature, draughts of air, etc., or is attributable to the body being overheated by violent exercise or brought into contact with damp clothing, then we shall, while carefully guarding the skin against these influences, seek the predisposing cause of the disease with a view to its removal. The skin is often brought into a susceptible condition, and a state of nervous innervation produced by exposure to alternations of temperature. The patients usually have a relaxed skin and perspire freely and have a listless manner and hesitancy of volition. In such cases the administration of Fowler's solution, bark and iron given in small doses frequently repeated will be found servicable. Conjoined with this treatment it is always best to recommend a cold douche bath every morning when first rising from bed. This is readily obtained by the patient standing in a hip-bath and allowing water from an ewer to run down the spine and over the shoulders. The object here intended is to brace up the muscles of the skin, awaken a healthy action in the cuticular nerves and lessen their susceptibility to atmospheric variations. As a local remedy in the above class of cases I prefer the application of an embrocation, of whose beneficial influence Erasmus Wilson speaks so highly consisting of laudanum and chloroform, of each two drachms, and of soap liniment half an ounce, or a lotion consisting of carbolic acid two drachms, glycerine one ounce and rose water eight ounces. The carbolic acid is used in such cases because when the skin is inactive, irritating parasites of a low form of life may find upon its surface a nidus for their procreation. In one case of this kind a young gentleman who bathed every morning and was in other respects scrupulously clean, scraped from his body an irritating scale of dirt which on my submitting to the microscope proved to be the nits of lice. But not only is carbolic acid parasiticide, but it is also a stimulant, astringent and anaesthetic.

If the blood is in fault by the circulation in that fluid of effete products or there exists an excess or deficiency in one or other of its normal constituents, then we shall best favor our patients by advising change of scene, a sojourn in some watering place where may be found not only exercise and fresh air to give elasticity to the mind and vigour to the system generally, but also those elements in the drinking water at the springs that are remedial in the treatment of functional hepatic, renal or uterine affections.

In urticaria arising from this cause the best local applications are solutions consisting of borate of soda one drachm, chlorate of potash one drachm, eau de cologne half an ounce, cherry laurel water two drachms, and water eight ounces, or corrosive chloride of mercury five grains, spirits of rosemary one ounce, spirits of wine one ounce, emulsion of bitter almonds six ounces, or five grains of corrosive chloride of mercury in a pint of dilute alcohol.

Not only are these several remedies useful as local alteratives and stimulants, but as borax, chlorate of potash, corrosive sublimate as well as alcohol are often of service in removing freckles and other discolorations of the skin, so we may expect and practically it is so, that the dark particles in the skin thrown out by the blood are thus chemically decomposed and subsequently extruded from the system. In this manner by removal of irritating particles not only is the itching controlled in the wheals already established but other wheals are prevented from forming.

If urticaria is found associated with some organic disease of an internal organ, it may afford us a clue to the predisposing cause of the affection. This internal malady by exciting nervous reflex irritation in the skin or interfering with the proper elimination of used-up material from the system, brings into operation the exciting cause.

In such cases we may readily understand why all dermatologists in their efforts to cure this form of skin disease unite in declaring that chronic urticaria is a most stubborn and troublesome affection to overcome.

There are a great many popular recipes for the treatment of urticaria and many more prescriptions highly extolled by physicians: such are carbonate of ammonia one drachm, acetate of lead one drachm, rose water eight ounces, mix; carbonate of soda or potash one drachm to one pint of water containing glycerine or *eau de cologne*; borax four drachms, glycerine two drachms and water six ounces, mix; oxide of zinc one drachm, liquor carbonis detergens two drachms to water six ounces, having cyanide of potassium one drachm to one pint of water, or dilute hydrocyanic acid one drachm to one ounce; hydrate of chloral one drachm, acetic acid one drachm, acetate of lead ten grains, acetate of morphia two grains, rose water six ounces, mix; or hydrate of chloral fifteen grains to one ounce, or nitrate of alumina five grains to one ounce, or chloroform half a drachm to one ounce of cold cream, or benzoic acid five grains, sulphate of zinc ten grains, cerate of spermacite one drachm, or hydrate of chloral and camphor, Fuller's earth, or electricity.

In dealing with the subject of treatment in urticaria all that has been written seems to be but a recapitulation of what preceding writers have written, and it is not to be expected that in touching upon the therapeutical indications presented by that disease, that I shall escape a similar accusation. In the attempt, however, to avoid such criticism I shall not condense my remarks into the bald statement made by Newman who is summing up the treatment appropriate for urticaria said: "Correct any digestive disorder, improve the general health and use remedies to allay itching."

In the acute varieties of urticaria it is usually found that food, either by exciting gastro-intestinal irritation or possibly in its putrefactive ferments giving rise in the blood to the development of parasitic atoms, is the *fons et origo* of the disease. In such a case the treatment is obvious. In my own practice I should advise the administration of full doses of castor oil emulsion, and the drinking *ad libitum* of water slightly impregnated with epsom, glauber, or rochelle salts made palatable in any manner desirable.

If the thermometer points to increase of temperature, and a bounding, frequent pulse is present then we may give aconite, veratrum viride, antimony etc., to quiet the pulse and allay the fever. Subsequently arsenic is given not only for its antiparasitic qualities, but also as a nerve sedative to allay the excitability of peripheral nerves and prevent the recurrence of the eruption or break its force.

In cases where the nervous system has acquired the habit, so to speak, of responding to the slightest irritation of its periphery and the action of the heart is feeble and the patient anemic, I am in favor of commencing the treatment by the administration of carminative aperients, as compound decoction of aloes followed by the exhibition of digitalis and arsenic continued in small doses for some time.

When we have a patient suffering from urticaria whose striking bodily characteristics are a small thin figure invested with nervous energy, agile in movement, quick in speech and erratic in disposition, we have nothing that I know of better than the exhibition of bromide of potassium with arsenic, combined with neutralizing cordial.

In those patients afflicted with urticaria with broken down constitutions where we have atonic dyspepsia with acid eructations and have reason to suspect that the fluids circulating in the body are in an abnormal condition, we could give elixer of bark and iron combined with arsenic and the tartarized soda and potash proportioned to the indications in the case.

When the disease accompanies gout, colchicum is combined with arsenic, for while the arsensic acts as a nervine sedative the colchicum extrudes the urates from the blood and reduces the temperature of the skin. In urticaria associated with rheumatism salicylic acid with arsenic is given, when consociated with sluggishness of the kidneys we advise the giving of acetate of potash and arsenic, when malarial, quinine is our great remedy and when hepatic inactivity is present I like the administration of cathartics that shall awaken the action of the liver to be followed by arsenic and solution of bismuth.

When seeing patients suffering periodically with this disease I have been inclined to ask with the poet:

What's rank or title, station, state or wealth
To that far greater worldly blessing health;
What's house, or land, or dress, or wine, or meat,
If one can't rest for pain—nor sleep nor eat,
Nor go about in comfort? Here's the question;
What's all the world without a good digestion.

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Art. 6. – Transcendental Medicine.—An Enquiry Concerning the Manner of Morbific and Remedial Agents Independently of Empiricism.

By T. L. WRIGHT, M. D., Bellefontaine, O.

SECTION IV.

The Influence of Locality Upon Race: as Perceived in the Changes in the Topography of Different Regions of the Globe.

It will be proper, while treating of the finer and more remote causes which influence the condition of the human being, to notice some of the facts which, in particular, illustrate the question of race, as applied to man. Having spoken of men as individuals, it is now the object to deal with masses; remembering that these masses are in the individuals composing them, still subject to the peculiarities and complexities of constitution already described. This object can be most readily, and briefly accomplished, by making a survey of the changes that have taken place in the character of the people, inhabiting certain portions of the globe; changes that are associated with alterations in the climate, soil, and general topographical aspect of such regions of the earth; and which are known to have taken place within the knowledge of scientific history.

Although mankind has a wonderful tolerance of circumstances adverse to a comfortable existence; although he can live, after a fashion, in any portion of the earth, where animal life can exist in an advanced form; yet, the range of location where the human being can live, and exhibit with ease, the higher attributes of his nature, is exceedingly limited in extent. It is surprising indeed, how little of the earth's surface is inhabitable by man, even in his uncivilized state. But those parts of the world where mankind is found displaying the highest qualities of his nature are not only very circumscribed in area but they are changeable and variable also. They seem to be extremely sensitive to the smallest innovating circumstances; and they shift from place to place in an almost capricious manner. A narrow strip of country only in the temperate zones, with great regions of that made desolate by mountains and deserts, appear to afford the natural conditions for the existence of man even in his state of semibarbarism. While in the north temperate zone, only, at the present time, and in comparatively small and isolated spots, are to be found examples of that particular *race* of man, which is capable of exhibiting those qualities of mind and body, that distinguish the human being in his best estate.

It may be remarked in passing, that it is doubtful if the new world offers the greatest possible advantages for the highest display of the human character. The fact that a race of people is losing its teeth, looks as though it was already on the road to decay, if not extinction. The additional fact, that an unusual percentage of marriages prove barren, or nearly so, appears to confirm the same idea. The children of foreign emigrants are proportionally, more numerous and more robust, and more energetic than those that spring from the native born. In some parts of the western continent, a kind of general elevation is kept up in the character of the population, apparently through the force of the foreign influx. But in those regions of the new world where emigration has abated, as in Mexico, Central America, and the states of South America, some of the characteristics of a shrinking humanity are observed. European features disappear, and European civilization with them; while ignorance, barbarity and mental decline assume the ascendant. And these appear to be the facts, in the face of many remarkable, seeming advantages presented by the western hemisphere for sustaining the highest possible elevation for the race of man.

Our system of government in its most admirable features, our history in its most glorious period, our patriotism in its most incorruptible era, date back to those days when the virile strength of the emigrant and his children, was yet unimpaired, by the depressing influence of prolonged residence on American shores. It is true, the energies of enforced labor strengthened the body, the necessity of unceasing vigilence against danger, quickened the attention, and the honest resistance to tyranny and oppression, intensified the courage. The truly great and vital act of the destruction of slavery in later days, was a reluctant act of military necessity, which has neither been followed by a manly acquiescence in its justice and propriety, nor by a wise establishment of peace and prosperity on its ruins.

There are many other facts not necessary to mention which seem to show a weakening of the virile powers of the race, even under the circumstances that are, at first view, most favorable for its elevation and advancement. This episode is only intended to introduce, what certainly appears to be the spectacle, of a race actually decaying; it matters not what may be the cause of the phenomenon. This view of the subject at once leads to the great fact, that topographical influences affect mankind in a most substantial way; and that of course, changes in the topography of any inhabited region of the globe would most likely be followed by changes in the characteristics of its inhabitants. Topographical revolutions inimical to the best development of man, when occurring in some most favored region, would most likely, at first give rise to diseases pointing to depressed vital energy, as neuralgia, catarrh, insanity, and other symptoms of general weakness. Diseases which characterize a sinking race, would be engendered, and the application of remedial agents would be correspondingly influenced.

Man is of course cosmopolitan. He can maintain life under any zone, and beset with many difficulties. But the mere existence of man as an animal, is not of much more importance than the existence of any other animal. In affording facilities for the display of the highest qualities of human nature, in the point, where some portions of the earth's surface are greatly to be preferred to other portions.

But it must not be imagined that race is really exalted with the advance of the age of the world. Nor does one race grow up and develop, from an inferior. A superior race disappears and dies under adverse circumstances; and an inferior race flows in to fill the vacuum. But a superior race will destroy an inferior one, when the habitation of the latter in the changes of ages, becomes congenial to it. The same race which is now superior, was superior also, in some region of the globe, in the earliest historical times. It was the same then as now; in features, in thought, in action, in morals, and in religion.

The code of morals recognized now throughout the civilized world, is identical, in almost every particular, with that of the Greeks and that of Buddha. And the system of spiritual life, now recognized, as far as it finds external expressions, differs very little from that of some oriental nations to-day. They have their hermits, religious orders and religious vestments, very much like those of a vast majority of the christians of the west.

Authentic history demonstrates that the best endeavors of man, originating in the highest advancement made by him, are not found to be constant in any one place. So sensitive is the high state of human development, in respect to peculiarities of location, that an apparently, insignificant change in one or more local influences, will cause a superior civilization to disappear altogether; or at best, give place to a mere shadow, the golden substance having perished. The effects of a slight raising, or subsidence, of the surface of the earth, on the land, or in the sea; of earthquakes and their accompanying disturbances, have quite frequently an influence positively vital, upon the very existence of civilization. When, too, the enormous distance of the earth from the sun is considered, it is amazing to perceive how very trifling a transposition of the relative positions of portions of the earth's surface with respect to the sun, suffices to impart such momentous impressions upon climate, soil, and animated nature.

It is not at all improbable however, that these surface changes, whether very gradual or sudden, really do have some effects of an electrical nature upon animal life. They certainly have a great influence upon the drying up, or bursting forth of water on the land; on the existence and direction of water courses also, and thence, upon climatic changes of various kinds.

The circumstances which, in truth, decide for a country the momentous questions of refinement or barbarism, population or solitude, are often so singular, and so apparently trivial, and also so remote in their origin, as to excite astonishment and incredulity. Countries which, within the range of authentic history, were the garden spots of the earth, the seats of learning, taste, and politeness, are now deserts; the habitations of unclean beasts and reptiles, or of men and women of the lowest and most bestial natures. These changes have nothing to do with political or religious revolution. They arise from the fact that the physical circumstances of the localities, have ceased to be capable of ministering to the higher capabilities of the human soul. The changes in truth are are of such a kind, that those physical elements of the human constitution, which stamp upon man his highest qualities, find no adequate sympathy or sustenance in nature. Men of baser proclivities, and belonging to an inferior race supercede the better ones.

From a point not far from the northern boundaries of Siam and Bengal, where the Himalaya mountains pierce the sky, the Aryan race, which now dominates the world, which has always controlled and represented every exalted trait possessed by man, took its rise. There where the changing vicissitudes of nature have made it impossible for that race now to exist, it was cradled. Thence, it passed on from place to place, and from region to region, as climate and other physical circumstances favored its ascendency, always ruling and worthy to rule; until at this moment, it is found in western Europe, presenting the same unchanging and unchangeable characteristics that marked it ever.

It is a melancholy labor to pass through the pages of history, and after witnessing the triumphs of man in his highest estate, follow him by the ruins he has left behind him along the track of time. Like a God he has lived and conquered, while all around trembled, admired, and obeyed. Soon we see him languishing and dieing with strange hopeless decay; a victim to the action of some of the ultimate forces of the universe, which he neither sees nor understands.

Earthquakes and the convulsions of nature attending them have almost made desert the once smiling face of Asia Minor. Greece and Italy produce no longer men like those, whose learning and philosophy even now, delight and instruct mankind. Nineveh and Babylon, once the centers of civilization, law and morality, are in the dust. Egypt, also, shows in her monuments that she once possessed a people distinguished by refinement and actuated by the sublimest ideas. In central Asia, ruins and monuments are discovered which attest an era in human progress, concerning which the few miserable, wandering Tartars now there can give no account. M. Huc says that during his travels through the plains of Mongolia he "came to an imposing and majestic antiquity. It was a great forsaken city, with battlemented ramparts, watch-towers, four great gates directed to the four cardinal points, all in perfect preservation, but all sunk three parts into the earth, and covered with thick turf. Similar remains of cities are not unfrequently to be met with in the deserts of Mongolia." The race of people now inhabiting that region is utterly incapable of producing any works such as are displayed in this ancient city. In speaking of the idols in Buddhist temples he says: "they have fine regular features, the innumerable length of the ears excepted, and belong to the caucasian type." The paintings of the native artists, says M. Huc: "are extravagant and grotesque, and are executed in a taste not admitted in Europe." But when he visited in the province of Gechekten, the great convent called Altan-Somné, (Temple of gold) "he saw a picture that struck him with astonishment. It was a large canvas, in the center of which Buddha was represented. Around this figure was arranged a series of portraits in minature, portraying allegorically the thousand virtues of Buddha. He could not sufficiently admire this picture, not only for the purity and grace of the design, but also for the expression of the figures and richness of coloring. One would have thought the persons were alive." The subject of this work of art, forbids it to be thought a trophy of Timour, or of Lingis Khan. An old priest declared it to be a work of very great antiquity; not Mongolian, but coming from Thibit. This, if true, would refer it to the country near to which the Aryan race was first known, and most likely indicated its true paternity. As further illustrating this branch of the subject, the following extract from the description of Persia in the *Encyclopædia* of geography is adduced. "The province of Seistan, south of the Dooraunee mountains is traversed by the river Helmund. This country, celebrated in Persian story as one of the finest regions of the east, exhibits at present a dismal reverse. It consists of sandy and barren plains over which the Belooch shepherds are seen driving their flocks. Yet the remains of extensive cities with superb palaces, which the traveler finds at short distances along the Helmund, confirm the truth of the Persian representations concerning this region. The cause of the decline is obvious, and irremediable at the hands of man. The province is encircled on every side by those immense deserts which stretch from the eastern frontier of Persia. The wind brings with it clouds of light shifting sand, which converts the fields into an arid waste, and gradually buries beneath it, gardens, houses and even villages." As it is perfectly clear that these sands were not moving upon this country previously to the building of the cities described, nor yet while the cities were in the course of being built, it is evident that changes, more or less gradual, must have occurred in the adjacent regions of Asia, through which the final catastrophy was made possible and unavoidable.

Once, the region of Asia where the ruins just described are situated, was a blooming, prosperous land; now its trackless wastes are the seat of excessive drought at one time, disastrous floods at another; now of vicious heat, again of intense and sudden cold, and hail stones destroying every green thing; and again, clouds of sand are seen overspreading and burying the fairest portions of the earth.

No part of the world has ever remained for what might be called a long period of time the seat of the highest civilization of mankind. The slightest disturbing influence suffices to throw out of unison the according forces which combine to make men great and happy.

As the conditions essential to the display of the highest characteristics of the human being fail in one locality, it appears that other portions of the earth's surface become fitted to assume those conditions. Measured according to historical chronology, the time passed in the preparation of new localities for becoming fit habitations for man is very long. And, as compared with the years of individual life; those within which man is given opportunity to write his name upon human events—the time that nature consumes in fixing the conditions essential, to such brief display of heaven born attributes, seems very long indeed. Patience, endurance, and above all, unflagging labor, are vital to success in great undertakings by man. So, the Almighty appears to labor through cycles of ages to prepare the elements of nature to join in one accord to enable some man or a few men of genius, to exhibit for a brief period in some circumscribed spot, the glory and greatness of the human character.

"There was a period when Europe from Sicily to Scandinavia was enshrouded in snow and ice. All the vallies in the Carpathian mountains, the Pyrenees, and the Appenines were filled with ice. Glaciers descended from the Alps and enveloped Lombardy and Piedmont. The European continent was, itself much of it, covered by the sea. Such surroundings rendered the existence of man in his lowest capacity, precarious if not impossible.

But the time came in the revolutions of ages, when these glaciers began to melt. The temperature was ameliorated. Animated nature began to appear; an elephant covered with hair, a rhinoceros, and a gigantic ox made their appearance. It is clear that this change in temperature could not have taken place without heat was supplied from some source not accessible, during the enormous period of congelation.

A new continent was assuming definite form and functions in the west. A portion of that continent toward the north. is as old as any land in the world. Still it is not the less true. that great geological changes were taking place in connection with the western continent; and when these changes were about consummated, they proved to be such as exerted an almost universal influence upon the modification of climate, throughout the globe. Among other things, the newly developed functions of the western continent, when it assumes its present shape, were attended by certain phenomena, which would tend to cause a new distribution of heat and cold, throughout great portions of the earth's surface. One of these phenomena was the formation of the gulf stream. The breezes of the distant Pacific Ocean, freighted with moisture, flowing eastward, precipitated upon the Rocky Mountains, immense masses of snow. Torrents of water rush down into the vallies; innumerable springs burst forth, and great rivers are formed which flow into the Gulf of Mexico. Joined to these, are the waters gathered from the western slope of the Alleghanies. All this, together with an inflowing flood from the Atlantic Ocean, being warmed by the heat of the tropics, is at length thrown, heated and genial, upon the shores of northern Europe in a continuous tide. The glaciers melt, and Europe is redeemed from the long imprisonment of frost and cold.

It is certainly no insignificant part of an exposition of the occult causes, that together, may be called the principle of transcendental medicine, to point out the recondite forces, remote in time, and distant in location, which now are operating to sustain human character, to modify human diseases, and, which may help to establish correct therapeutical principles.

There are other natural phenomena beside the Gulf stream which coöperate to make the European Continent what it is seen to be at present. One of these is found in the drying up of the water which once caused the great African desert. This has opened up a new source of heat. The heated wind from the desert of Sahara melts the snow on the Alps and Appenines, and it assures to southern Europe a most agreeable climate.

It is clear that man cannot, in many very important particulars, control his own destiny. To obtain the highest development of race, and to enjoy the distinguishing powers of mankind at his best, it is essential that external nature must harmonize with the highest organism possible for the race. This is difficult to secure, and impossible to retain in perfection. The ruins of the Aryan race are scattered wide upon the face of the globe. The Hellenic features are sculptured upon the ruins of the Nagton Wat in Siam. The most ancient and venerated representations of Buddha in Thibet, in Tartary, in Bengal, and India have clearly defined Caucasian features. It has been shown that the true founders of the Egyptian claims to renown and grandure, were of the Aryan race. A modern traveler thus describes certain Eyptian statues carved out of wood: "The eyes were remarkable specimens of the earliest pre-Raphaelite attempts to imitate nature. They are inserted with a surprising fineness of invention. The lashes are veins of bronze, the whites are formed of opaque quartz, the iris is of rock crystal, and in the centre of each, is set a small crystal with many facets, which, from every side reflect a keen point of light like that of the human eye. The eyes fairly gleam and sparkle, and there are moments when a human intelligence suddenly lights up the face."

This vivid description of statues representing the highest possible type of the human race is supplemented with the observation, "that these remains of the earliest highest art yet discovered in Egypt, represent a quite different type from that of the latter dynasties. They are probably 6,000 years old, and thus antedate by 3,700 years all other relics of art at all comparable with them. They are Caucasian or Aryan."

The highest forms of religion have also been the doctrines of the Gapetic race. Semitic nations have a low idea of spirituality. The doctrine of the immortality of the soul is not theirs, except by adoption. The idea of the incarnation has in it nothing repulsive to the followers of Buddha. It is almost impossible to convert a Buddhaist to Christianity. He will say, your religion is the same as his own, but not so elaborate and finished in detail. He believes in the transmigration of the soul of his Deity from one grand Lama into another. Even Pope Pius IX says: "When one Pope dies another is born. But the thought of divine incarnation strikes an Israelite with horror.

The facts bearing on this branch of the discussion of Transcendental Medicine are inexhaustible. It is only necessary to treat it therefore in this place, in a manner as suggestive as possible. Its immediate illustrations affecting the diseases of persons, and their remedies, are not direct but indirect; for the reason, that the forces and subjects bearing upon the question of race, operate primarily upon masses, while pathology and therapeutics are applicable mainly to individuals. Still it will not be disputed that the whole subject opens up many intricate avenues for research, and recondite questions for consideration, concerning man in his individuality, both in health and disease.

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Art. 7.—The New Amphitheater of the Cincinnati Hospital.

The new amphitheater of the Cincinnati Hospital was formally dedicated recently, in presence of several hundred medical students, the Board of Trustees and a large number of medical gentlemen connected with the several regular schools of medicine in this city.

The opening address was delivered by Dr. C. G. Comegys, who spoke as follows:

Gentlemen, the Board of Trustees, the Medical Profession, the Clinical Staff, Students of Medicine:—

We meet to-day under favorable circumstances in this new and capacious amphitheater now about to be dedicated to Clinical Medicine. But first of all let me, in the name of the Staff, thank you, gentlemen of the Board, for your untiring labors and munificent expenditures to put at our disposal a place so much more convenient of approach and better adapted in every way to its purpose, more especially in light and ventilation, than the one first constructed for clinical uses in this house. I am confident that those of you, students, who are in Cincinnati for the first time are impressed with the completeness and beauty of this vast Hospital, among the largest in the world. If you should have the opportunity and will take the trouble to visit our institutions, you will see in every department of our City Government, whether for education, for a public library, for the care of the insane, the poor, for the administration of justice and for correctional purposes, the same large plans and thorough administration.

The old house, of which this is the successor, was far less capacious and well ordered. It was built by the pioneers, and answered the purposes of the time; and it is due to the teachers of medicine of that primitive period, to say, that they comprehended entirely the necessity of practical instruction side by side with didactic; and the clinical course which they then began has been maintained without intermission down to this day, and this is the fifty-seventh year since its inauguration. We meet thus on old clinical ground, for it was here by the side of the primeval forest, just across the way, that Drake and his associates opened to Western medical students this institution for the use of practical medicine. It was administered under the laws of Ohio, which distinctly set forth that every student of medicine shall have the privileges of its courses of instruction. As we sit here to-day, participating in the opening of this new and larger amphitheater of this ancient school, our thoughts expand to the vast theater of action in which thousands of physicians of our Nation, who once as students followed this clinical course, display their ability to cope with the afflictions, the sufferings of their fellow-men.

I will not attempt to dwell on the character of those who have preceded us as the conductors of instruction, for there is to follow me one who, as the orator of the Board of Trustees, will set forth not only the great virtues, but the professional renown of the men who so effectively illustrated the science of clinical medicine in this place during these long years. I congratulate you on your opportunity of hearing him, who has ably borne his part in this clinic for nearly forty years, and who moreover has had the rare opportunity which his long life affords of knowing every man who has taught here from the beginning. Let him speak of those illustrious teachers; indulge me a short time while I say something of the work which the Staff of this Hospital still attempts to do.

I avail myself of this auspicious moment to say that the medical staff for years past has attempted, by the help of the Trustees, to enlarge in every way this house as a place of clinical study. Not only have the number of clinical lectures been increased from four to twelve a week, but they have been specialized in several ways. This is seen in the creation of the departments of morbid anatomy, ophthalmology, and gynæcology, to which are given one-third of the whole course of lectures—in fact as many as were formerly given to all subjects; and with this growth has come a museum of pathology, and a library which may truly be said to contain the progressive literature of the medical living age.

It is proper here to remark that the funds for the creation of this library and the museum are derived entirely from the sale of tickets to students. Both of these institutions are, therefore, free for your study while you remain in the city.

I wish to go further, and say that it has been the earnest desire of the Staff to so increase the facilities of the clinical value of this house that at least every advanced student might have the advantages of observing disease at the bedside in the wards. This is the only possible way of perfecting a clinical course of instruction. A great effort was made four years ago to accomplish this, and with partial success, but it was abandoned by reason of the many obstacles that interrupted its progress. I do not propose to speak of the opposition which was so powerful as to defeat the plan, but only desire on this occasion to show for the sake of historical reference that the Staff have earnestly labored, and partially succeeded for a time, to place the clinical and pathological instructions of this hospital in the front rank of the leading medical schools of the world, and I am sure that you will agree to the great and essential importance of such methods of instruction. I hope that the time draws nigh when the Faculties of our colleges and Trustees of our hospitals, will willingly coöperate and revive the noble effort we made to give so high an order of medical instruction to the students who come to Cincinnati. It cannot be long, I believe, ere the clinical teaching of our great hospitals will be so interwoven with the didactic instructions of the colleges that they shall constitute one and the same course that fits the student not only for his degree, but for his responsible and trusted place as a benificent member of society.

It is with no small degree of pride that I speak to-day of the grandeur of medicine as produced by clinical studies. It would be an inferior advantage to the world if medical teaching consisted in the exhibition of anatomical, physiological and chemical demonstrations merely; it is to bring all of this indispensable knowledge into practical use for the relief of the sick that constitutes the work of clinical observation. The more thorough the didactic work, the greater the possibility of clinical study. It is to the clinical field, in the battle for life, that all of the exact knowledge of the schools must be brought to make the victory possible.

Medicine is still on so low a plane in the public mind that no just appreciation of clinical knowledge exists. It is the popular idea, to too great an extent, that diseases are very easily defined. It is agreed that there is great obscurity in the interpretation of the Holy Writings, and that the meaning of the Constitution and laws of the land are of exceedingly difficult definition; that incessant controversies are developed on the interpretation of the laws; but doctors are jeered, not only because they have not yet unraveled the most complex organisms in creation, but also because they hold lively disputations about the functions thereof. Let divines stand unagreed on topics under discussion since the Christian Era; let eminent lawyers labor unremittingly for months to get at the truth of a case, let one-third of all the decisions of the lower courts be reversed by the higher, and no one regards it as phenomenal; but let two doctors disagree in a given case, let a *Post-Mortem* examination reveal an error in diagnosis, and on all sides you hear contemptuous remarks on the low state of medicine. I shall not pause now to inquire whether medical information is as trustworthy as that of any other pursuit; it is enough to invite your observations in that way to prove that it is so. Indeed, human acquisitions in all departments are generally on the same level. But I pause on this topic, and will close remarks on the methods of clinical study.

Clinical medicine is a science of observation, like natural history, or physics, or chemistry, or political science. To interpret the phenomena of disease, we employ the same method of induction which has been so fruitful in discovery in every department of acquisition. It is impossible for any one to take the final step in medical inquiry—that is, form a diagnosis—without the employment of all the laws of thought as exhibited in the science of formal logic. I say any one, whether he knows a single formula of logic or not, will be found, in any successful solution of a case, to have been under the influence of absolute laws of thought; it is inevitable in any process of sound reasoning.

Now, this is what I wish to impress upon you in the beginning of your clinical observations, for the purpose of encouraging you in methods of fixing the data in every case of sickness which you shall encounter, in order to give precision to your final judgment. It will inspire you with earnestness in your studies if you are brought to perceive that it is no fortuitous work, but that there is a line of observation to follow which will lead you to intellectual conceptions of diseased action; and if this is the same process as that which is employed by the naturalist, the astronomer, the lawyer, the statesman, the engineer, and by all who labor to agrandize human knowledge, it will give an enthusiasm to your students that will lift you above the dullness and indifference which hard and unsatisfactory tasks so often superinduce. I assert here, in the presence of these learned physicians, in perfect assurance of their accord, that nothing ever arouses more our intellectual activity than the patient investigation and close thought employed in our attempt to unravel obscure cases of disease. It is a consolation to you, gentlemen, students, I know to be assured that your clinical studies will lift you above the course empiric who makes his diagnosis by merely glancing at the tongue, or the urinary and alvine dejections, or by some fanciful application of electricity. It is a pleasure to you to be informed that diagnosis is obtained by the study of data with which you only become familiar by didactic teachings and bed-side observations, and not by incidents in medical gossip.

I now come to my illustration of these brief remarks by saying that every science of observation is developed by three operations:

FIRST, by making a description and nomenclature of the phenomena in the object to be investigated. In medicine this includes what we denominate the clinical history, viz.: sex, age, social state, ancestral affections, previous diseases, symptoms furnished in the beginning of present attack and those furnished by an examination of the organs and their functions in detail.

It is of the first moment that all the symptoms should be noted, for any important one overlooked, or not ascertained through ignorance of methods of examination very often vitiates every other step in the procedure. What to observe at the bedside constitutes a very high order of practical medical education. There are many symptoms quite obvious to an ordinary bystander, such as pain, vomiting, purging, cough, labored breathing, paralysis, unconsciousness, delirium, dropsy and so on, but there are a multitude of most important ones which an expert only, can discern, and appreciate the condition which furnishes them.

The most marked progress in medicine in our time has been in symptomatology. It will suffice to mention, in this regard, the enormous gain by percussion and auscultation as applied in the study of the organs within the chest; the use of chemical tests, the microscope, ophthalmoscope, laryngoscope and other instruments of research.

What we thus ascertain of individual symptoms in a patient, corresponds in logic to the "terms" of the question. But the list however accurately made does not make a diagnosis, to be sure it contains it implicitly, but other steps must now be taken to give it an explicit form.

SECOND:—A classification of the symptoms. Classification in Clinical Medicine corresponds to "propositions" in formal logic.

In the study of the clinical history as we see, the abnormal functions of organs (symptoms) are noted in detail. It is an accepted law that alteration in function indicates an alteration of structure in organs. We proceed then to classify the symptoms in their relation to various known diseased states of organs.

For a simple example let the symptom be "bronchial respiration." The didactic and practical experience we possess enables us to say at once that it is due to a change of lung tissue around a bronchial tube; and this alteration may be classed with pneumonia, pleurisy, consumption, emphysema, or œdema. Or let a symptom be enlarged dullness of the hepatic space, and this may be classed with congestion, inflammation, abscess, various morbid growths of the liver, or chronic pleurisy and pneumonia. And so I could proceed to show how a symptom furnished by the circulatory, digestive, nervous, or excretory organs can be classed with several morbid conditions of these organs; but it would require a treatise to set them all forth.

The ability for classification is attained by thorough didactic training in the schools, the study of standard treatises, bed-side observations, and *post mortem* examination. It requires more ability for its exercise than the notation of symptoms; yet no amount of it constitutes clinical science, though it is a great step towards it. In what class shall the central fact be found that will explain all the subsidiary ones?

THIRD:—Now having formed the classification, or "propositions" from the symptoms, we have the *data* for a final calculus—the establishment of a *unique* fact (diagnosis) whose whole significance is determined by the other secondary facts which it numerically includes: in other words to find what is the organ that gives out the symptoms or abnormal functions, what part of it is diseased, and what is the nature of the disease affecting it? A true answer to these questions is a diagnosis. It is an aim of all logical inquiry to find one great fact that will include the rest. We have for this attainment an interpretable calculus which though it cannot be employed as a quantitative mathematical expression, it may be, qualitatively; and the forms under which the propositions are exhibited are analagous to those of a philosophic language; and our inferences are to be drawn from the mathematics of functions where quantities so exist that, as before said, an alteration in function involves an alteration in structure. You constantly hear the phrase "differential diagnosis" or calculus. By it we explain the method of finding the differentials peculiar to each disease. As Da Costa says: "we take cognizance of and dwell on the essential signs by which one disease can be distinguished from another which it resembles." Now take the symptom, bronchial respiration, which we have classified as appertaining to several lesions of the lungs; and to ascertain the disease to which it is related in a case in hand, it is necessary that we dwell on the essential signs in each one; we must ask whether it is due to destruction of respiratory areas, by tubercular deterioration, inflammatory exudation, pressure of fluids in the pleural cavity, transudation of serum into the lung tissue, or a destruction of resiliency of air cells. By considering the differentia in each of these affections we are able with great certainty to infer the condition to which the symptom (function) is related,—we differentiate the special state of the organ whose abnormal functions we study. It is a true syllogistic process; we reason upon the data and explain the functional laws under which they operate. Thus, you will find by working in this way, that you are fulfilling both the processes of the differential, and the integral calculus; by the first, following the definition of Brande, we explain the method of finding the differentials of determinate functions; by the second (the differentials being given) we find a function such that when differentiated it will produce the given differential.

My moments do not allow me to enlarge the exposition of a philosophical calculus as applied to clinical investigation. It may strike you as tedious—even pedantic, but it is the only road to high scientific practice. As we must proceed slowly in all our acquisitions at first, that after a time we may become so quick and ready that a glance of the eye or touch may suffice to know a thing; so in bed-side study—the diagnosis by an expert is very often achieved while making a notation of symptoms, for the intellectual laws, the canons of logic, to which classification is subject, grasps the case meanwhile. But this is very far from always being the case. Nevertheless there are acquired automatic habits in clinical life as in every other, by which rapid and true opinions are reached; but it is only by incessant culture. The ophthalmoscopist must look into the depths of the eye nearly every day to keep himself bright; and the same may be said of a physical diagnostician.

To show how this same process is employed in other sciences let me repeat the old story but never to die out, of the researches of astronomers to find out the irregular or perturbed (shall I say diseased?) state of the planet Uranus. What was the matter? There was pathology in the heavens; it must lay in the gravitative action. Two eminent mathematicians, without knowing each other's aims, determined to find it out—Leverrier, of France; Adams, of England. They employed precisely the same method which I have been trying to set before you for clinical study. They collected all the symptoms; they made every possible classification of them, by supposing the influence of another mass somewhere, and thus the whole question was brought within the powers of the omnipotent calculus, and it was determined that there existed hundreds of millions of miles outside of Uranus another planet whose size, weight, motion and position in space they definitely fixed; and its presence there explained all the recognized perturbations of Uranus. Leverrier thus unlocked the mystery of the skies. In the depths of his soul he saw the new orb and drew it from the darkness of space into the light of the eye. He knew it as certainly as if the Almighty had revealed it to him in a vision of the night. He saw "that the geometry and mechanics which are practically applied in the works of nature are precisely the same as those which reason perceives as necessary truth; so that in scientific observations we really are viewing the laws of our own reason operating around us in the objective world."

It is by processes like these, gentlemen, though our data have by no means the stage of certainty of those of the mathematician, by this patient, self-sacrificing research that the mysteries of disease are to be brought within the view of clinicians.

There have been triumphs in a multitude of instances in hygiene and practical medicine thus obtained. He who found the only method of delivering us from the small-pox plague achieved for humanity immeasurably more than the astronomers. The very recent discovery, of the preservation of the symmetry of the human form in osseous degeneration, by the simple application of plaster bandages, will give a thousand-fold more happiness to the world than the more recent discovery of the moons of Mars. He who discovers a relief for pain and remedies that arrest destructive diseases, will be far more a benefit to the race than the discoverer in any other department of human progress. Sayre's demonstration of his method before the last British Medical Association, created an enthusiasm never before accorded to an American surgeon. But I believe that more and far greater truths will yet break forth from medical investigation. The day of medical reproach is passing away, and a new dawn already dispels the shadows about us. The state will yet engraft medical science into its administration, as the department of justice is, and then only will society feel the mighty affects of its beneficent offices in the relief of all those diseases that are permitted to prey upon the people by reason of the neglect of hygienic laws which our science has made plain.

A last word: You perceive, gentlemen, all, how inseparably connected are the conditions of medical progress—the college, the clinic; but they are, alas! kept too far asunder. I confess freely that it has been the aspiration of my heart too see this great city of the West now so replete with hospitals and schools and able teachers, consolidate its efforts in one institution, in which didactic and clinical medicine should be made so thoroughly coöperative that all the interest of our science could be carried forward with that intelligence, feeling and force that would make our city really a great medical center of the world. Certainly we have the resources in ample clinical structures, colleges, laboratories and museums. Instead of antagonism we want union, and no rivalry founded upon mere business interests; but that glorious rivalry, on the contrary, which is developed by the conscientious labors of each one striving to advance to greater conquests the medical science of our times.

Do I not see in this splendid audience of trustees, professors, practitioners and students, a promise of such a union? However it may appear to others, to me, on this auspicious day, this grand assembly is a bright apocalypse of the future.

Dr. Comegys then introduced Professor M. B. Wright, who was warmly received, and listened to with close attention.

The Professor has been intimately connected with the medical profession in this city for nearly forty years past, and is eminently qualified for the part he took—that of giving a historical sketch of the public hospitals of Cincinnati from their start. Dr. Drake, in 1819, urged upon his friends and others the necessity of an institution of this character, but so little encouragement did he receive that the project looked hopeless. Finally in 1821 the Legislature passed an act authorizing the erection of a building for the purpose and appropriated $10,000 in depreciated currency. Once begun, the enterprise went along till the old Commercial Hospital, as it was called, was replaced by the handsome structure of today.

The Professor then outlined the manner in which clinical teaching is conducted in the Hospital, and the earnest labors of the medical and surgical staffs for the advancement of scientific medicine. He said that, throughout the history of the Hospital, there has been but one lady in attendance upon the lectures and clinics, but a marked deference was observed among the students, and, though the time has not yet arrived for the gentler sex to assume the arduous duties of the profession, the right hand of fellowship will be extended and all aid afforded to lighten the burden.

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Art. 8.—Cases of Sub-Normal Temperature.

Reported to the Cincinnati Medical Society,

By J. C. MACKENZIE, M. D., CINCINNATI, OHIO.

CASE 1.—FRED. BENNETT, Colored.

April 28, 1876.—Aged 24; Tennessee; works in laundry; single. Resident in Cincinnati nine years, formerly in Nashville, Tenn.

Family history:—Mother living; father dead; cause of death unknown; two sisters, aged respectively 5 and 7, died of measles, one, aged 15, died of small-pox; one brother, aged 6, died of measles; one sister living complains of her lungs; one brother living and healthy. History previous to present illness:-Three years ago had some fever, and 9 years ago some venereal trouble. When 16 years old had measles and was unwell for 3 months; he was in the army at the time; was in the hospital three years ago and treated for syphilitic adenits and bronchitis; he remained in the house then 15 months.

Present illness began last February. After washing in the laundry he took a severe cold, from which he has suffered ever since. At the time of the beginning of his sickness he expectorated sputa streaked with blood after much coughing; has also, for the last two months, been troubled with a sore throat; has been losing flesh and strength; has had a hard, dry cough for the last two years, which, however, did not incapacitate him for work until lately.

Present condition: Tall and spare; complains of pain over the sternum; abdomen swollen and very tender over its whole surface; coughs a good deal; not much expectoration; does not sweat at night; pulse, 100; respirations 24. Ordered gr ii. quinine and gtt. xx tinc. of chloride of iron 3 times daily, and syrup of morphia to control the cough.

For the next four weeks there was but little change in his condition; his temperature ranged, in the morning, between 96° and 99°, and in the evening between 99 and 102.5°; pulse, between 80 and 120; respirations, between 16 and 32. On the 12th of May he was ordered an ounce of whisky three times daily in addition to his other treatment.

May 22.—Morning, temperature 97°, evening 97.5°; pulse 88; respirations 44. Physical examination: dulness on the left side of chest, anteriorly and posteriorly, but the auscultatory sounds, although more feeble than on the other side, are normal in rhythm. Heart sounds normal.

May 24.—Morning, temperature 99°, pulse 116, respirations 28; evening, temperature 99.5°, pulse 124, respirations 28; crepitant räles heard over the base of left lung posteriorly. Whisky and quinine to be continued.

May 25.—Is very weak but can still get out of bed without assistance; hæmorrhagic spots have appeared over the breast and back; coughs a good deal and expectorates a small quantity of bronchial mucus. Morning, temperature under the tongue 90.5°, pulse 76 weak, respirations 20. Physical examination: dulness over left side in front much more marked than formerly; in a space 2½ inches square, bounded by the second and fourth intercostal spaces and two vertical lines, one-half an inch to the left of the nipple, the other one inch to the left of the median line a crepitant räle is very distinctly heard; urine has a specific gravity of 1008 and contains a small quantity of albumen. To take gr iij. quinine and gr x. carbonate of ammonia every 3 hours, and ℥ss. whisky every 2 hours. At 11 o'clock A. M., temperature under tongue 92°; at 12 M., in rectum 92.6°; at 3 P. M., under tongue 90.75°; at 9 P. M., under tongue 90°.

May 26.—At 5 A. M., temperature under tongue 93°; at 9:30 A. M., under tongue 92.6°; at 9:30 A. M., in rectum 92.8°; at the latter hour pulse 88, respiration 24; as he vomited the carbonate of ammonia, it was omitted; is constantly getting weaker; no desire for food; bowels regular; at inferior portion of right lung, posteriorly, small, moist crackles are heard; the crepitant räle persists in the same region of the left lung; a to and fro friction sound, syncrhonous with the heart's action, is heard about an inch above the nipple and half an inch internal to the nipple line. At 5 o'clock P. M., temperature 91°, pulse 88, respiration 16. The whisky and quinine have been continued.

May 27.—Evidently sinking, but has still strength enough to rise in bed, put his legs over the side and there sit while being examined. The crepitant räle is still heard in left anterior region, but over a more limited space; the to and fro friction sound quite distinct; the sputa, which are very small in amount, are not now and never have been at all rusty, nor has there been any labored breathing at any time; complains of no pain but simply of weakness. At 3 A. M., temperature 91° under tongue; at 9:30 A. M., temperature 91.25°, pulse 80, respiration 16 ;at 6 P.M. he was unconscious; pulse at that hour 70, respirations 12.

May 28.—Died this morning at 7:15 o'clock. No symptoms worthy of note preceded his death.

Autopsy 4 hours after death: Body somewhat emaciated; post mortem rigidity, marked; abdomen, tympanitic from gaseous distension; small, hæmorrhagic spots over whole body.

Thorax. Tolerably firm adhesions over whole of left lung; firm adhesions posteriorly over right lung; twenty-four ounces of blood, partly fluid, partly coagulated, in right pleural cavity; the upper lobe of the left lung crepitant throughout, containing no abnormal matter of any kind; lower lobe very firm in texture, non-crepitant, but apparently containing no exudation; right lung crepitant throughout, but less so than normal; consistence of lung tissue normal; pericardium perfectly normal; heart very small; valves quite competent; no narrowing of the orifices; muscular substance healthy.

Abdomen: Liver does not project beyond the cartilages in the mammary line; it is firmly adherent to diaphragm, large intestine and right supra-renal body; large intestine adherent by blood connections to gall bladder. Liver weighs 3½ lbs; on section scattered throughout it are numerous minute white granules about the size of a large pin's head; these have not undergone degeneration at any point; liver substance generally exceedingly uniform in appearance, so that the lobules cannot be distinguished; in consistence it is normal. Right supra-renal body very much enlarged and very firm; the connections between it and the liver are so firm that they cannot be separated without laceration of tissue; that portion of the body adherent to the liver contains the same granules found in this organ. Right kidney: Weight 6 ounces; capsule easily detached; surface beneath quite smooth; on section it presents a very pale and somewhat translucent appearance; cortical substance slightly increased in amount; iodine produces the amyloid reaction, but not very markedly, most noticeable in the vasa recta; beneath the mucous membrane of the pelvis are numerous extravasations of blood. Left kidney similar to the right. Spleen slightly enlarged; normal in consistence, and containing the small white granules in great numbers. Small and large intestines and stomach healthy. Mesenteric glands enormously enlarged and everywhere firm; no caseous degeneration in any part of them.

Over the anterior and right side of the bodies of the dorsal vertebræ, is a fluctuating tumor, which is made up of several cavities communicating with each other, filled with a curdy material; the anterior portion of the second and tenth dorsal vertebræ is quite carious; the eleventh and twelfth are similarly affected, though to a less degree. Situated to the left side of the bodies of the last dorsal, and the upper lumbar vertebræ is a sac five inches long containing caseous matter; projecting into the upper part of this sac is some denuded bone, part of the lateral surface of the tenth dorsal vertebra; elsewhere it is lined by firm membrane. To the right of the lumbar vertebræ is a cheesy mass the size of a walnut; the retro-peritoneal glands are enlarged and very firm. The disease has at no point affected the spinal canal or its contents.

Case 2.—Wm. O'Bannon, Colored.

Aged 33; marine. Admitted May 4, 1877.

Family history unknown. Drinks beer, but not to excess; five years ago had some form of venereal ulcer; has not been feeling well since last August; has had a cough for three weeks, and bowels have been loose. Present condition: A spare man, rather debilitated looking; tongue slightly coated; poor appetite; bowels moved 14 times to-day; nothing abnormal found on physical examination of the chest; urine normal. To have gr i. opium and gr xv. bismuth 3 times daily.

May 10.—Cough improving; diarrhœa checked. Is taking gr. v muriate of ammonia and gtt. x of tinc. of opium every 4 hours.

May 21.—Feels weak and has no appetite; very little cough. To take gr. iij cinchonidia every 4 hours.

May 24.—Dulness below the clavicle on the right side; weak respiratory murmur and some moist râles heard in the same region. Is evidently growing weaker; temperature has been normal and is so now. To take ℥ss. each of cod-liver oil and whisky 3 times daily, and continue the cinchonidia.

May 28.—Dulness posteriorly as high as the spine of the scapula on the right side, and blowing respiration heard in the same region.

May 29.—Somewhat tympanitic resonance over the right back and lateral regions and mammary and infra mammary regions; amphoric respirations heard very markedly in the posterior and lateral regions, less distinctly anteriorly; vocal fremitus absent on the right side; vocal resonance somewhat pectoriloquous and very loud; movements of the chest equal on the two sides, heart sounds quite normal, impulse extended 1½ inches to the left of the nipple line; pulse very frequent and feeble. To take ℥ss whisky every 2 hours.

May 30.—Becoming weaker; tympanitic sound more distinct on percussion; auscultatory phenomena unchanged; skin of extremities cold. Morning temperature 97° in rectum, pulse 112, respirations 24; evening temperature 96° in rectum, pulse 120, respirations 28.

May 31.—Temperature 96° in rectum, pulse 120, very weak, respirations 28.

June 1.—Had 3 stools last night; physical signs unchanged; extremities cold. Temperature 100°, pulse 120, respirations 28. To continue the stimulants, and to take gtt. x. laudanum every 4 hours.

June 2.—Temperature 98.5°, pulse 102, respirations 28.

June 3—Temperature in rectum 98°, pulse 100, respirations 28. Died this evening at 4:45.

Post mortem examination made 21 hours after death: rigidity very slight; great emaciation. On opening the abdominal cavity the diaphragm on the right side was found projecting downwards, entirely displacing the liver to the left of the median line. On opening the right pleural cavity it was found almost entirely filled with air, the right lung being compressed against the spine. On removing the lung, an aperture about half an inch in length was found near the apex; this opened into a cavity, which communicated with a bronchus of the third division; the pleura about the aperture was somewhat thickened; the walls of the cavity were lined with shreds of broken-down tissue. The rest of the lung was thickly studded with granular deposits. The left lung was very œdematous; kidneys, liver, (except as to position), and spleen, normal. In the lower part of the descending colon was a number of ulcers.

The cases which I have reported, present some very interesting points. The symptom common to them both, and this is the reason of my reporting them together, is the Sub-normal Temperature.

Upon referring to the works on Temperature in Disease, I find but little said upon this subject. Wunderlich states that it occurs after severe hæmorrhages, in conditions of collapse, eg. cholera, and occasionally in chronic diseases, attended with marasmus, as cancer and diabetes. He mentions some cases of congenital syphilis, where the children were greatly reduced and the temperature very low, 77° in the rectum, and refers to the observations of Roger, that in sclerosis of new-born children the body heat is also greatly diminished, the average of 26 cases being 87.8°.

The Journals also furnish but little information upon this subject. The most remarkable cases that I have seen reported, are the following:

A case reported by Dr. Needen to the Clinical Society of London, an account of which is contained in the LANCET, February 8, 1873. The patient fell some distance injuring his back in the dorsal region This was followed by paralysis of the chest and greater part of the trunk and lower extremities. Death occurred on the

11th day after the injury, and on that day the temperature was 80.6°, having gradually sunk to that point. The temperature in this case is a most marked exception to what is generally observed as the result of injury to the spinal cord. The reason why in this case the temperature should have been 80.6°, and in a case reported in 1875 by Mr. Teale, which in many respects resembled it, (a young lady having been thrown from a horse and having her spine injured as the result), the body heat should have maintained for many days the extraordinary elevation of over 120°, is at present impossible of explanation; but these diversities of temperature, as the consequence of spinal injuries, have not infrequently been observed.

A case of very low temperature is reported by Dr. Greenhow in the transactions of the Clinical Society vol. iii. The patient presented the symptoms of General Paralysis of the insane, with a temperature of 84°. There was very marked atrophy of the brain.

Low temperatures, in connection with insanity, are not very uncommon. Dr. Long Fox, in his lectures on Temperature, published in the Medical Times and Gazette, mentions a case of melancholia, in which the thermometer indicated 95.4°; and Wagner in his Pathology, quotes a case of C. Löwenhardt's, in which the patient, a lunatic, presented for days before his death a temperature ranging from 77° to 88°, reaching at the time of death, 74°.

The cause of the lowering of the temperature in the first case which I have reported, that of Bennett, was probably the hæmorrhages into his chest, together with the low condition of his nutritive functions. The hæmorrhage I regard as due to the Purpura Hæmorrhagica, which supervened upon the other conditions. The sub-normal temperature in the other case was, no doubt, due to the shock produced by the rupture of the lung and its collapse, consequent upon the entrance of air into the chest cavity. These explanations are supported by the fact that the reduction of temperature corresponded, in point of time, with the occurrences of the lesions to which it is referred.

A fact of great interest in Bennett's case, was the existence in the lung and pericardium of physical signs, for which post mortem there was nothing found to account. That these signs were present does not rest upon my observation alone. Dr. Holdt examined the case and agreed with me; and they were quite easily appreciated by the internes of the hospital. It was never for a moment supposed that the man had Pneumonia. All the other symptoms contradicted such a view. Nor was it considered very probable that he was suffering with pericarditis; the friction sound was the only symptom of that disease manifest in the case. And yet, this sign is considered by many authors as pathognomonic of pericarditis and pleurisy, when heard in the appropriate situations. I am certain that I have, at least twice, followed to the dead house the bodies of patients who presented this sign, and in which nothing was discovered accounting for it. The only author whom I have consulted, who refers to these unaccountable cases where rubbing sounds are heard and nothing appreciable found post mortem, is Walshe, in his work on diseases of the lungs.

Another feature in this case worthy of remark was the great tolerance of the patient under his most severe maladies. Although his spinal column was most extensively diseased he never complained of pain there, and the day before his death, put his feet over the side of the bed and sat up. The spinal trouble was never suspected, and at first, it was thought that it might afford some clue to tho low temperature, but no affection of the cord could be detected, the disease being confined to the bodies of the vertebræ. The miliary granules found in the liver were, undoubtedly, tubercles. A curious fact was their being confined to that organ and the spleen.

A similar tolerance of grave lesions was observed in O'Bannon's case. When he came into the house his cough was scarcely complained of, and his diarrhœa was checked soon afterwards, although post mortem examination revealed numerous ulcers in his bowels. Even after the collapse of his lung, his breathing was comparatively easy, never above 28 respirations in a minute.

It is probable that in both these cases the unwonted tolerance was due to the low state of nutrition to which all the tissues, the brain among the rest, were reduced. And to the same condition we may assign immediately the low temperatures, whatever may have been their ultimate causation.

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Reviews and Notices.

Review of Nervous Disorders and Insanity.

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(Continued from April No. L. & O. 1877).

For reasons not necessary to mention the completion of this review has been delayed for several months. The points we desired to present are no less interesting and important now than if presented then, and besides, much new literature having been added we are thereby better assisted in presenting the subject. We shall now be able in this paper to present a *resume* of many observations, reviews, and monographs not then published. We shall however, confine our study to the same portions of the subject: THE NATURE AND PATHOLOGY OF GENERAL PARALYSIS; the chief point being a consideration of the relation of the pathological changes to the lesions of sensation and motility. The first work to be considered is that of Bonnet and Ponicare.

They present the following problems as the essential points of difference between writers:

First, is the disease fatally subordinate to the mental alienation or does it precede it?

Second, are the somatic troubles of general paralysis inseparably connected with the intellectual?

Third, are anatomical lesions of the brain above all the cause of the paralysis?

Fourth, besides the lesions of the brain do we not find others which produce the affection?

Fifth, does general paralysis come on insensibly? Are the psychical disorders produced afterwards?

Sixth, are the mental and physical symptoms parallel in their order? In this case can it be that in advancing simultaneously certain phenomena mask others, as we have at times latence of a side?

Our authors say that for a long time they felt disposed to subordinate general paralysis to the insanity. At another time they remained undecided, but from the too visible examples they have attached themselves to the theory of morbid unity and simultaneous symptomatology. They say: "We have plainly in principle adopted the semeiologic views of Bayle, and we are in accord with him upon the congestive element. But we are separated upon the *primum movens* of this element. Bayle, as Calmeil and the majority of writers in noting the congestion of the brain, see nothing beyond that and they localize in the encephalic organs the conditions of congestive causality. For us, on the contrary, the meningo-encephalitis, *as often as it exists*, will be secondary and not primitive and we refuse to the brain and its envelops a principal part.

"If the meningo-encephalitis truly exists it is but very posterior to and derived but from an ascending process which in the past determined it. But the anatomico-pathologic elements, seen at the first necroscopic inspection, and which all seem to connect themselves with secondary inflammation, are but marked places for a defective nutrition, which at the infinitesimal limits of assimilation, a vicious blood has transmitted to the encephalic organicules. If inflammation is added, it is but the slow effect of a remote cause and a derangement of general nutrition. All our necroscopic examinations unite with the clinical, proving it abundantly. Then if we are in accord upon two important points, the unity of the disease and the congestive element, we differ essentially upon the mode of interpretation, and upon the point of departure."

PATHOLOGY.

The authors then present the views of Baillarger, Calmeil and Marcé upon the pathology of the disease, and quote from the last writer in *italics* this question: "How is it that an inflammation never terminates in suppuration, and is prolonged two, three or more years?" They say the word "diffuse," employed by Calmeil, shows in the minds of these men a doubt as to the true nature of the disease. They discuss the various alterations of white and gray nervous matter, blood vessels, connective tissue, exudations, &c. We will not follow them, or repeat these views, having already in the first part of the article called attention to them as well as others.

Page 25 our authors say: "We come now to our own researches." These concern us in this review much more, for if they have presented anything new we desire to give the reader the benefit of it. They say: "We have examined, without prejudice of mind, all parts of the nervous system, the spinal cord and sympathetic, as well as the encephalon, and then only have *a priori* concluded that in the sympathetic are we to look for the seat of disease.

Our attention was first strongly drawn to the brown coloration of all the cells when we examined the ganglia of the great sympathetic. We know that authors speak of this special pigmentation as an attribute of old age and the convalescence of grave typhoid fever. We have examined ganglia taken from individuals not insane, and attacked with various diseases, and of whom the age varied from thirty to fifty, and have always encountered a rusty colored contents of the cell; but we can without hesitation declare that this coloration is at most less general and of less intensity than is found in general paralysis. Since we have multiplied our observations, we have acquired the conviction that those who are nourished by exactly natural alimentation have always ganglionic cells uncolored or tinted only of a pale yellow. We have been led thus to think that the conditions of civilized life have little by little, through numerous generations, created a new normal state, that the alimenation more and more artificial to which the human race is subject has for a result the profound modification, *with hereditary transmission*, of the histologic constitution of the elements of the nervous system, effected by the life of nutrition. That which confirms our manner of seeing is that we show the highth of this modification in the paralytics who have abused alcohol, or who, by their position in the world, are led to figure in those repasts from which the most sober withdraw, the exciting productions of culinary art, causing unconsciously excesses. We have equally proved that men the most serious, exhausted by long and continuous mental labor are subject at first to perversions of appetite and scarcely make choice of food, sustaining themselves viciously, making abnormally reparations which end in the histologic conditions we have described.

"Here, they say, is what we have shown with our general paralytics on the side of the great sympathetic. All the ganglia present a slight enlargement, and with this, small rusty spots, some deep blue, others pale yellow. With an objective 3 and 5 we recognize that each of these spots correspond to a cell, and some to grains of pigment which fill the cellular cavity, and which sometimes occupy one of the poles. The nucleus is sometimes seated at the centre of this pigmentary mass, but more often it is remote —in general, pigmentation is more marked in the neck than in all other regions. Often it is not limited to ganglionic cells; the neighboring adipose cells have a more or less brown tint. In the circumjacent cellular tissue we perceive here and there some small depots of pigment which then is wholly black. Most generally the vessels are intact, but we find some of them spotted with black pigment. A frequent fact in the cervical ganglia, is their distension and even a varicose state.

"If in the microscopic observation of the sympathetic of paralytics, the coloration of the cells first strikes us; an attentive examination soon reveals two other alterations, less apparent at first, but more serious and more significant. At some points of the ganglia, very limited, there is an incontestible poverty of cells. On the contrary, the connective tissue predominates. The greater part of the time this superabundant cellular tissue is sprinkled with numerous and large departments of adipose cells. In all these cases the three alterations, *pigmentation*, *superabundance of cellular tissue*, *substitution of fat for the active element*, ought to concur to diminish the action of the ganglia and hasten the consequences of a vasomotor paralysis.

Next, our authors speak of the pathological anatomy of other parts. They have examined with the most scrupulous attention the state of the vessels and the meninges. They studied them in situ—in the white and gray substance. "We have encountered a slight encroachment of cellular tissue, but always in limited points, and we can certify to never having found proofs of a true sclerosis, a sclerosis above all capable of producing the mechanical consequences invoked by Salomon, to explain the production of general paralysis. The finest cappillaries preserve their calibre perfectly free. We cannot admit for an instant here the defect of nutrition due to an impermeability of the vessels. It has been thus with the subjects of our ten last observations, and also with seven others of which the observations have been published by one of our distinguished *internes* of the Asylum of Marëville, Doctor Manegot, (*These de Strasbourg*, 1867).

A mode of alteration of vessels, much more constant and almost general for each individual, consists in the presence within the cellular tunic of the small arterioles, of plates, more or less extended, of brown pigment entangled with yellow crystals and fatty granulations. All branches do not present these plates, but we can say that it is almost a general rule, and *more, there are not individual exceptions.*

The capillaries which are furnished with the muff described by Robin present a considerable number of the same plates, crystaline and pigmentary, in the cavity circumscribed by this envelope. Very often we remark, in the course of the vessels, vast agglomerations of fatty granulations. They are, thus to say, fixed upon the course of the vessels by a very fine plate which seems to belong to the cellular tunic, and to have been raised from it in the manner of the epidermis in the formation of a blister.

"A fact which has struck us,is the presence of a quantity of enormous globules of fat in the blood stream, which stagnates in the vessels. These globules of free fat, chemically and physically separated from the other elements of blood, cut off in the middle the parts which surround them by their proportion and great refrangibility. All these alterations of vessels are found indistinctly in all points of the encephalon. In the cerebellum they are less shown and less marked."

Our authors next discuss the clinical philosophy of the disease. They divide its progress into four stages. They quote several authors with reference to points in question, among whom is Bernard, to show that general paralysis resembles the condition of animals mutilated by section of the sympathetic. They speak of the condition of the pupil and remark, that always the symptoms shown in the iris and pupil give evidence of congestion and irritation of the sympathetic.

We next have ten cases reported with post mortem and microscopic observations, and a consideration of each case in all its bearings. We then have summed up in the form of conclusions, the result of all.

Their conclusions are:

1st. In general paralysis there is sometimes proliferation of connective tissue about the vessels; but it goes never so far as to obliterate the bore of the vessel. As a consequence we cannot attribute the functional and material alterations of nervous tissue properly, or a defect of supply of blood, there is not sclerosis of the encephalon.

2nd. The principal and constant alteration of the encephalon, consists in the deformity and degeneration of cells by fat. We find besides, but less often: 1st, globules of free fat in granulous matter, sometimes isolated, sometimes agglomerated; 2nd, masses of granulations of a ferruginous color, not enclosed in the common envelop; 3rd, pigment and hematosin in the walls of the vessels and fatty granules. By times the fatty granulations form vast agglomerations at the periphery of vessels. Often we perceive enormous globules of free fat, or fat and blood mingled. The nerve tubes are always intact.

3rd. We have found no other modifications in the cord than a great abundance of ferruginous granulations in the cells in the neighborhood of the membranes.

4th. The cells of all the chain of the great sympathetic are colored by a brown pigment, in a manner more intense than in any other affection. In the ganglions of the cervical region, and often in the ganglions of the thoracic region there is all evidence of the substitution of connective tissue and fat cells for nerve cells, which there rarely show themselves. Everything leads us to think that there is found the anatomical point of departure of the affection, and that the anatomical alterations of the encephalon are but the consequences of the troubles that result from sclerosis of the cervical ganglions disturbing the cerebral circulation. There is always a very marked pigmentation of the spinal ganglia, and of those which are annexed to the cranial nerves. The adipose cells which are substituted for the nerve cells in the ganglions of the great sympathetic, offer very frequently a bright coloration which can go even to a black tint.

5th. All the alterations that we have described, hasten disturbance of nutrition in the greater part of the organs, troubles which end in fatty degeneration or other modifications of their elements, which translate themselves physiologically, by ataxia at first, and afterward by the weakening of all the functions of life, both of relation and vegetation."

We will review in this connection an article by Crichton-Brown, vol. vi, of "West Riding Asylum Reports," entitled, NOTES ON THE PATHOLOGY OF GENERAL PARALYSIS OF THE INSANE.

The article begins with the statement usually made by writers concerning general paralysis: "Notwithstanding the large amount of attention bestowed upon it during the last half-century, general paralysis of the insane may still be regarded as an obscure disease, uncertain as to its origin, indeterminate in its nature, and intractable under treatment." Important advnaces in our knowledge of it have been made, yet he thinks that it is not now diagnosed with precision early in the disease, and is often confounded with other degenerations, and death attributed to it, when the disease did not exist. He quotes Dr. Gronet, of the Parisian Asylum at Ville Everard, who thinks "that in France it is still sometimes confounded with chronic alcoholism, epilepsy, hysteria, locomotor ataxy, tumor of the brain, encephalitis, and muscular atrophy; and facts are not wanting to suggest that in this country, also, it is occasionally but imperfectly recognized. Such a fact is the appearance of general paralysis in the table of the causes of death of more than one lunatic report, as the sole form of organic disease of the brain having a fatal issue. We know how largely responsible for the mortality of an asylum general paralysis is, but we know also that there are other forms of cerebral degeneration and disease which invariably swell that mortality, and when we find no recognition of these other forms, we are justified in concluding that the term General Paralysis is employed in far too comprehensive a sense."

The author thinks we have no "strictly scientific knowledge" of the progress of the disease, and that our knowledge of the relation of lesions to symptoms is very imperfect. Why is this? Simply because symptoms have not been studied in relation to pathological changes, and as we have before remarked several times, authors and observers have pre-conceived notions, and warp unconsciously facts to suit their notions. They study only symptoms in the relation they sustain to the parts they suppose to be the seat of the disease.

Again, physiology has been at fault to some extent. Our knowledge of the function of different parts of the brain, and the influence they exert upon the others, has been imperfect. When we determine what influence the cortex cerebri has upon parts below, in the production of degenerations, much light will be thrown upon the nature and pathology. Recent experiments and observations, to which we shall refer, throw some light in this direction.

If the seat of disease is at any given point we should be able to locate it at a post mortem examination, or especially if the microscope be called to our aid. But if one locates it in the brain cortex, another in the membranes, another in the white substance, and still another in the ganglionic system, all equally competent observers, are we to conclude that it is easy to determine what special lesion produces the disease?

We have reviewed the appearances found by Bonnet and Poincare. Crichton-Brown speaks equally positive of other conditions. He says: "The brain of a general paralytic patient who has died in the ordinary course of the disease, at the end of the third stage, generally, with its envelopes, present, to a superficial examination, certain appearances that are distinctive. Those who have had much experience in the *post mortem* theatre of a lunatic asylum, ought to be able to pick out the fresh brain of a paralytic from amongst a number of other brains of chronic lunatics. Occasionally they might be at fault, for in some brains of general paralytics the distinctive appearances are not well marked, and in some other forms of brain disease, such as chronic atrophy and chronic alcoholism, the appearances presented very closely resemble those seen in general paralysis As a rule, however, the brain of a general paralytic should be fixed upon without much difficulty, but the characteristic and distinctive appearances which enable it to be thus recognized, are more easily seen than described. Indeed, when they are enumerated one by one they cease to be distinctive, for each of them is encountered in other forms of brain disease having no alliance with general paralysis. There is not one of them that is peculiar to that disease, and it is in the grouping and combination that the distinctiveness consists.

"Let us suppose that the brain of the patient who has died of general paralysis has been removed from the skull, and that in this case there are no arachnoid cysts nor other adventitious conditions. What first strikes us is an abnormality in the shape and consistence of the brain. It is somewhat attenuated in the frontal region, and it lies upon the board as if it were flattened and collapsed. It lacks the rounded contour and plumpness of the healthy brain, and has an uneven outline and lateral bulgings, obviously due to the softness of its proper form when deprived of the support of the cranial walls. All fresh brains of course, except those that are sclerosed, fall away to some extent when they are laid upon a flat surface, but the subsidence of the general paralytic brain, is greatly in excess of what is ordinarily seen. And not only is the brain softened, but it is atrophied, and there is an obvious decrease in the volume of the entire cerebral mass, as may be ascertained by exact measurement and comparison with a healthy standard, and as might have been inferred from the large amount of serous fluid with which the brain is bathed. In no form of mental disease, except in the dementia of brain wasting, is atrophy of the brain so advanced as in general paralysis, which is all the more remarkable, as death happens in general paralysis in that decade of life in which the maximum weight of the brain is attained.

"The next observation that occurs to us, is that the arachnoid is greatly thickened, and that it has lost its transparancy, and become white and opaque. Along the margins of the great median cleft, where the pachionian granulations are unusually numerous and of large size, it has become a tough, glistening membrane, and over the frontal and parietal lobes it is in many places cloudy or opalescent. Over the occipital lobes the arachnoid retains its natural aspect, but over the temporo-sphenoidol lobes and cerebellum, scattered patches of whitish opacity are generally to be noticed. These are, however, small and few in number, when compared with the patches of thickening and opacity over the upper and frontal aspects of the cerebrum. Wherever situated, the opaque patches are best seen over the sulci, and not on the summits of the gyri. In addition to these patches lines or belts of similar whitish opacity may sometimes be noticed running parallel to the vessels on each side of them, conforming to all their sinuosities.

"Directing our attention next to the pia mater, we notice that it, as well as the arachnoid, is remarkably thickened. Instead of being thin and delicate, it is coarse and tenacious, and has a swollen and somewhat gelatinous appearance, owing to infiltration of its meshes with serous fluid. It is not, however, pale and watery, as in brain-wasting, but is irregularly hyperæmic, presenting amidst its œdematous expanse reticulations of dilated vessels, and with more or less injection. The distribution of the morbid changes in the pia mater corresponds with that of those in the arachnoid. They do not extend on to the occiptal lobe, and are most marked over the frontal parietal lobes. As regards the great arteries of the brain, we are struck by their freedom from atheromatious deposit and calcareous degeneration. A few specks or blotches of atheroma may be seen on the basilar or anterier cerebral arteries, if the patient has been attacked late in life, but these are not at all of the character of the changes noticed in the arteries in senile or organic dementia.

"Looking next at the convolutions, as seen without disturbing the membranes, a glance suffices to show that they are much atrophied, the wasting being most advanced in the frontal and parietal lobes, present to some extent in the upper part of the temporo-sphenoidal lobes, but invisible in the occipital lobes or orbital lobules. To compensate for the wasting there is much oedematous effusion, which is diffused throughout the meshes of the pia mater, and collected in some places in hollows and channels, where the wasting is very far advanced. The wasting of general paralysis seems to differ from that of senile, simple and consecutive dementia, in that it is nearly as well marked in the parietal as in the frontal lobes, and to agree with it in that it does not invade the occipital lobes. From the wasting of organic demetia it may be readily distinguished, because it is less localized, and because there is no rusty brown staining of the membranes of the deepest depression, due to the destruction of cerebral substance."

The author says that by this outward inspection his colleagues, at the West Riding Asylum, have determined with accuracy whether a brain, submitted to them, belonged to a patient affected by general paralysis, although knowing nothing of the history of the case. He speaks, also, of other external appearances as characteristic of the disease, as that the skull is generally thickened, but not of very dense consistence, its inner surface having a reddish-blue tinge, owing to the presence of blood in the diploë. Sometimes the skull is soft, and in these cases the thickening is considerable, while the groves for the meningeal vessels are very deep, and have an excavated appearance as if the artery was lodged in the bone, as it actually is, for osseous ledges may sometimes be seen projecting over it, and occasionally uniting to form a complete bridge. The dura mater, which is thickened, is adherent to the skull, must so in the frontal region, but here the adhesions are not of that strong and intimate character, so often seen in senile dementia, where the greatest force is required to tear through them, and where shreds of the dura mater, white glistening, fibrous shreds, often of large size, are left attached to the bone. On the inner surface of the dura mater, which is rather dirty in color throughout, and the sinuses of which contain dark fluid blood and clots, there is more or less staining of rusty, brownish-yellow colour, which often forms a distinct film, and can always be scraped off. This staining, which is often most distinct and extensive when there is an arachnoid cyst, may occur in any region, but its favorite habitat is the temporo-sphenoidal fossa. Besides this rusty staining, there are seen on the inner part of the dura mater the remains of filiform bands, which have at certain points passed between it and the pia mater.

"If the dissection of the brain be next proceeded with, the thickening of the pia mater is again impressed upon the observer when it has to be torn through, and a new pathological feature comes into view, when the attempt is made to strip it off. It is then found to be in some places intimately united with the gray matter of the convolutions. Instead of coming away from the frontal and parietal lobes, as a loose and well-worn glove does from the hand, as in most cases where there is wasting of the brain it does, it is glued to the surface of certain gyri, like a glove that has dried into an open sore, and if it is forcibly torn away it removes some tissue, and leaves a rough, eroded surface beneath. The superficial layers of the cortical substance are, in fact, torn away with the pia mater, and may be seen adhering to the inner aspect. The points or areas of adhesion may be few or numerous, large or small, distinct or confluent, but they are invariably confined to the summits of the gyri, and do not spread down their sides nor occur at the bottom of the sulci. They have an irregular outline and jagged edges, and incline, perhaps, to an oval shape, having their long diameter parallel to that of the convolution on which they are situated. When the pia mater has been stripped from a region of cerebrum, in which the adhesions are abundant, the denuded and abraded convolutions look just as if they had been gnawed and eaten away by a caterpillar. The surface of the convolutions, not implicated in the adhesions, is generally smooth and normal. Occasionally, however, in a few places, it has a granular, or rather, perhaps, a porous appearance, as if it were perforated by numerous minute holes. It is always paler than the eroded patches, which are darker than the cortical substance usually is, and have often a red and engorged aspect. The removal of the pia mater makes more obvious the wasting of the brain already adverted to. The gyri are seen to be attenuated, and the sulci enlarged.

On slicing the brain, a general deterioration in its quality is at once recognized. The gray matter has a shallow and faded appearance, and is traversed by vessels that are coarse and prominent, and in some places it has a violet or vinous tinge. It is, undoubtedly, softened and watery, as is also the medullary substance, which is of a dirty, greyish-white color, and presents an excessive number of coarse, vascular points, and a varying number of blotches of vinous staining. The ventricles, which are abnormally capacious, contain an excessive amount of serous fluid, the choroid plexuses are œdematous, and the ependyma is often granular. The basal-ganglia are all more or less atrophied, and the cerebral nerves as a rule, have a preternaturally white and glistening appearance.

In the case of the brain, in which all the pathological appearances now enumerated were markedly present, there would be probably no great difference of opinion as to the nature of the disease causing death. I do not know of any disease, save general paralysis, in which all these appearances, and no others might be found. But the difficulty is that in a large number of cases of undoubted general paralysis these appearances are not found, and that, in a small number of cases, some other appearances, which have not been here described, are present. But this difficulty is not peculiar to the study of general paralysis, for in almost every fatal disease there are extensive variations in its morbid anatomy. The question that arises in view of this difficulty, is, can we fix upon any one appearance, or group of appearances, as being invariably present? And in reference to general paralysis, the answer to that question has hitherto been given in the negative. All authorities are agreed that there is no appearance, nor group of appearances, that is so pre-eminently frequent as to be entitled to paramount attention, or to be regarded as the central fact in a circle of pathological changes. In differing from most authorities on this latter point, and in maintaining that there is one morbid appearance in general paralysis that is so frequent as to be specific, I rely upon a very large number of observations made during the last ten years, and upon the facts revealed by certain methods of examining the brain that have not, I believe, been adopted by other investigators.

The one appearance in general paralysis, it seems to me, which is very constant and very characteristic, is the adhesion of the pia mater to the cortical substance. This appearance, which was originally discovered by Bayle, and was regarded by him as corroborative of his theory of the disease, which he worked out with much ingenuity, viz: That it is analogous to chronic meningitis, has since been noted by every one who has investigated the anatomical conditions of general paralysis, but has mostly been set aside as an accessory or inesential feature. Its real significance has been overlooked, I think, because all hopes of penetrating the mystery of general paralysis have, for many years past, been fixed on the microscope, and because in the scant attention bestowed on the hand-and-eye examination of the brain, its presence has often escaped detection.

So long as I continued to examine the brain in the usual way, and to test the relations of the pia mater to the subjacent grey matter, only at a few points selected hap-hazard, so long did I share the prevailing belief that the adhesions between these were only occasional and secondary. It was then only when, in pursuance of some anatomical researches, I carefully stripped the whole brain in many cases of general paralysis, that I came to recognize the frequency of adhesions more or less extensive in some region of the cerebrum. Since the frequency of these lesions was first recognized, I have given them a large amount of attention, and have come to these conclusions:

1st. That they constitute the most constant pathological change in general paralysis.

2nd. That they explain the essential nature of the morbid process in that disease.

3rd. That they will also, when minutely studied, explain its symptoms and progress.

That they are the most constant change will scarcely be disputed, but that they can be said to be constant and not invariable, may be regarded as fatal to the expectation that will explain the disease.

If cases of general paralysis occur—cases presenting all its familiar symptoms, and running its accustomed course, in which, after death, no adhesions are discoverable; and if cases of other forms of cerebral derangement occur—cases presenting symptoms different from those of general paralysis, in which, after death, adhesions are found, then in that sense, it may be asked, can adhesions be said to have any necessary connection with the morbid process peculiar to the disease, whatever that may be?

The question is a very pertinent one, and unless it can be satisfactorily answered, it would be useless to concentrate attention upon these adhesions, and to endeavor to connect them with special symptoms. In endeavoring to answer it, I would in the first place point out that the proportion of cases of general paralysis in which adhesions, when carefully looked for, are not present, although still not definitely ascertained, must be exceedingly small. Judging from my own more recent experience, I thould say that adhesions exist in 80 per cent. of all cases of general paralysis. At one time I should not have alleged that they occurred in so considerable a proportion, but the more thorough inspection of the brain, which, in such cases I have lately instituted, has led me to see that in some instances in which I should formerly have ignored them, they were present very unmistakably. And it is only after a thorough, laborious and time-consuming examination of the brain that we are entitled to say that it is free from adhesions, for as I shall presently show, they are sometimes very irregularly distributed and narrowly localized. It is not enough to have stripped the lobe or hemisphere. Unless the whole brain has been denuded we are not justified in saying that there are no adhesions.

Now, the propriety in asserting that, in many cases in which adhesions have been declared absent, this complete denudation, which besides being tedious, demands some manipulative skill, has not been carried out. An explanation has been made of the region in which adhesions usually occur, and because they have not been found there, it has been inferred that they do not exist elsewhere. But this inference is quite unwarrantable.

Some twelve months ago I examined a brain, in which, by experimental stripping with the forceps under water, I could not discover any adhesions, which were, however, revealed in considerable numbers when the brain was examined by another method, which I shall presently describe. When that method is generally adopted in the examination of the brains of general paralytics, it will, I think, be admitted, that adhesions between the pia mater and cineritious substance exist in 80 per cent. of all fatal cases.

In twenty out of every hundred cases of general paralysis, however, it is admitted that adhesions are not recognizable, that is to say, if these twenty cases have been correctly diagnosed as instances of general paralysis—a qualification which is very needful —because as I have already pointed out, the diagnosis of the disease is not always accurate. And curiously enough, in my own experience, it has just been in those cases, in which diagnostic doubts have intruded during life, that the adhesions have been wanting after death, the real difficulty seems to me to be to distinguish general paralysis from chronic atrophy of the brain; and it has invariably been in those cases of general paralysis that have most resembled chronic atrophy of the brain, that the absence of adhesions has been noted. It is a fact, and a very significant one, that the adhesions are always most plentiful and firmest in the most typical and acute cases of the disease.

If the delirious conceptions have been of the most extravagant kind, if the motor disturbance has been severe, if the excitement has been intense and the febrile action considerable, if the course of the disease has been rapid, then the adhesions will be abundant. But if, on the other hand, the chief manifestations of the disease has been a gradual, slow diminution of the intellectual powers, with ill-defined motor impairment, and without very prominent, delusions or great emotional perturbation, then the adhesions will be few in number, or may be altogether absent.

That there are varieties of general paralysis is universally acknowledged, and that it is in what may be called its mildest variety, viz: "that bordering most closely upon simple brain-wasting, that the adhesions of the pia mater to the grey matter are most frequently absent, is certainly the result of my experience."

The author then discusses cases in which there are no adhesions, and asks if these adhesions then are to be considered as representing the fundamental morbid process. He says, yes; that the process may fall short of producing them. Also, there are other cerebral diseases in which there are adhesions, which fact is opposed to this theory; that adhesion is the essential pathological condition. But those diseases in which adhesion exists are allied to general paralysis. The author says that in the examination of 1,500 morbid brains, he does not remember to have encountered adhesions, except in the following diseases;

Tubercular meningitis, encephalitis, meningitis, acute and chronic, atrophy of the brain, chronic alcoholism, syphilitic degeneration and general paralysis.

In all of these cases there are combinations of motor and mental symptoms, to some extent resembling general paralysis; in all of them the morbid process, from which the adhesions resulted, was of an inflammatory kind; and in all, the distinction from general paralysis are recognized.

The Doctor then gives the differential diagnosis by which the various conditions may be distinguished. This occupies several pages, and is well worthy of careful study. He then discusses the indications that the process going on is inflammatory, in general paralysis: headache, exudation, the hyperæmia, etc., and concludes this by saying:

"General paralysis is essentially a cerebral disease, with mental and motor symptoms, and it is in the cortical substance of the cerebrum that its fundamental conditions must be sought. I have now endeavored to show, 1st, that the adhesions of the pia mater to the grey matter of the brain are the most frequent and characteristic of the pathological appearances found in general paralysis of the insane; 2nd, that they are caused by a chronic adhesive inflammatory process, springing out of excessive functional irritation, and proceeding to disintegration of the cerebral grey matter; and 3rd, that, speaking generally, they represent the course and distribution of the morbid processes, in which the disease essentially consists.

"If these propositions should be established, or even if there should be a probability of their correctness, the adhesions in general paralysis assume an importance that can scarcely be exagerated, and merit the closest study. These adhesions would then become the legible records of a series of experiments of the most instructive kind performed upon the human brain by disease. They would mark upon the cerebrum, the centres, from stimulation and destruction of which, by a morbid process, a certain series of symptoms has proceeded. They would enable us to trace their source, with more or less precision, the psychial and motor disorders and impairments of general paralysis, and they would thus guide us to the localization of the functions of the brain.

"Thanks to the general indications of Hitzig, the precise work of Ferrier, and the clinical observations of Huglings Jackson, we are already in possession of invaluable information upon this subject, and fortunately, what we already know may be applied as a test to the trustworthiness of the guide proposed to conduct us to fresh discoveries. There are, in general paralysis, invariably certain motor symptoms, involving, in different degrees and in various orders of succession, the muscles of the face, tongue, hand, arm, etc. Do adhesions occur over these areas in cases of death from general paralysis? Yes, almost invariably—a fact which in itself gives plausibility to the claim advanced for these adhesions to be regarded as reliable *vestigia* of the diseased action."

This is the view we entertained when we begun this article a year ago. In looking over the literature of Nervous Disorders, we could not understand why physiology should not be brought to our aid to determine the seat of general paralysis, as well as paralysis of any other form. Now we see an effort is made in this direction. It is the application of this recent literature to the subject that we expect will throw more light upon it. Do the symptoms that are manifest in the course of the disease, correspond to those produced by lesion of the centres which, it is alleged, are the seat of the disease?

In our next we shall, we think, be able to show that they do, and that to a certain extent all observers are correct, and that in some respects they err in excluding facts that should be considered as evidence.

* * *

Fees of Experts, etc.

At Fort Wayne, Indiana, in a case where Drs. Dill and Buchman were called upon to testify as experts in a case of suspected rape—the physicians refusing to give their opinions without being recompensed, were remanded to prison, but upon a writ of Habeas Corpus were brought before Judge Lowry who gave the following opinion:

A petition for a writ of *habeas corpus* was filed in this case, a writ ordered issued and served, return made thereto, and the body of the petitioner produced in court, and exceptions filed to the return. Upon the issue thus made two questions, it is assumed, arise, and have been discussed in argument. They are: First, has this court authority to inquire into the legality of the process by which the petitioner is held in custody or discharge him therefrom before the term of his commitment has expired? Second, Is such imprisonment illegal?

In order to subserve one of the purposes for which it is understood this writ has been sued out, and that what seems to be the expectations of counsel as to this point on both sides may be complied with, the latter question will be considered first. The inquiry involved under this head is in brief: Has a person called as an expert,—in this case a physician—having in all other respects as to attendance as a witness, at the instance of the defendant, and answering all preliminary questions in a trial in the criminal court for felony, when called upon for his opinion upon a question of skill pertaining to his profession, a right to refuse to answer until provision is made for his compensation, either by the defendant or the court; or is he in such case guilty of contempt and subject to imprisonment?

That a witnsss, generally, who refuses to answer a question determined by the court to be proper is in contempt, and subject therefore to imprisonment, is so elementary as to meet with universal recognition, and, of course, is not here attempted to be controverted. But it is insisted that an opinion on a question of skill is so far different from a statement of a fact, by reason of its having been necessary to expend time and thought and incur expense to qualify the witness to give the opinion, as that he has himself a special property in it, which he cannot be compelled to part with; or, that to express it is to render a particular service, which he cannot be compelled to render without compensation therefor, and that such compensation may be demanded in advance.

If any such right to compensation in addition to that provided for in the case of witnesses generally exists, it must be in virtue of something peculiar to our constitution and laws in this country. In England "an additional compensation for loss of time was formerly allowed to medical men and attorneys, but that rule is now exploded." Note 2 to S. 310 1 Greenleaf Ev. citing Lonergan vs. The Royal Exchange Assurance, 7 Bing. 725. Collins vs. Godefroy 1 B. & Ad. 950. And this distinction seemed to have had an existence only in civil cases. Webb vs. Page, 1 Car. & Kir. 23, is cited in the same note to the effect that "there is a distinction between a witness to facts and a witness selected by a party to give his opinion on a subject with which he is peculiarly conversant from his employment in life. The former is bound as a matter of public duty to testify to facts within his knowledge. The latter is under no such obligation, and the party who selects him must pay him for his time before he is compelled to testify." It will be seen presently that this case must also have been treating of the rule then in force in civil cases. And the text of the same section cites stat. 5, Eliz. c. 9 as providing that in civil cases in order to secure the attendance of a witness it is requisite that he "have tendered to him according to his countenance or calling his reasonable charges," adding that "these expenses of a witness are allowed pursuant to a scale graduated according to his situation in life." The author then proceeds: "But in this country these reasonable expenses are settled by statutes at a fixed sum for each day's actual attendance, and for each mile traveled from the residence of the witness to the place of trial, without regard to the employment of the witness or his rank in life." In civil cases the fees provided for according to the English law had to be paid or tendered. Not so in criminal cases. There no tender of fees was in general necessary on the part of the government in order to compel its witnesses to attend. Indeed at common law there was no mode provided even for reimbursing witnesses their expenses in criminal cases. Roscoe Cr. Ev. 110. Provision has since the period of time ceased at which statutes passed in aid of the common law became a part of that law as adopted in this state, by which in England witnesses in most criminal cases get remuneration, but in no class of offenses has it been provided there that witnesses shall be entitled to payment, or tender of fees before attending or testifying.

Nor have I been able to find any English case making a distinction in criminal prosecutions between witnesses testifying as to facts and those called as to questions of skill.

Such being the state of the common law as to this question up to and after the time when the body of that law and the statutes passed in aid of it was adopted as our own, what change, if any, has taken place with us? It is not claimed that the rights of witnesses, whether experts or others, have been enlarged by statute. How is it as to any constitutional provision? The Bill of Rights, Art. 1, Sec. 21, Const. Ind., provides that, "No man's particular services shall be demanded without just compensation. No man's property shall be taken by law without just compensation; nor exempt in case of the state without such compensation being first assessed and tendered." When a witness is required simply to testify in a court of justice it cannot be said in the sense of this provision that his property is to be taken. He is not to be deprived or divested of anything. If he have an opinion on the question in hand it is not proposed to dislodge it or dispossess him of it and transfer it to the enjoyment and dominion of some one else. It is proposed simply that he shall give it expression. To do this it is necessary to set in motion the organs of speech. By their use he lays before the jury a statement of the laws appertaining to some department of nature, science, art, life, or business not within the common and general observation and knowledge of mankind. This knowledge he has at some previous time acquired through the use of his senses, by the impressions made upon them from without, and by classifying, arranging and comparing those impressions he has formed conclusions or opinions. He is now required to state what those opinions are; or it may be simply to state what the views of others of acknowledged authority are received and acknowledged by his profession, as he may have got those views from books or heard them from the platform. This is obviously in either case a "service" that he is required to render. It is not even some original combination of forces, or some new and grand invention of his own, that he is required to divulge. It is not a hereditament,—corporeal or incorporeal,—nor an easement connected therewith,—nor a corporeal or incorporeal chattel. It is "particular service" within the meaning of the constitution? As regards witnesses generally, the question seems to be put at rest by Israel vs. The State, 8 Ind., a case of felony, resulting in acquittal, where, on a motion to tax the costs of defendant's witnesses to the state under the constitutional provision quoted, the court says:

"It is further contended that the court should have taxed the costs under that provision of the constitution which declares that no man's particular services shall be demanded without just compensation." But we do not think so. The old constitution contained a like provision, but we believe it never was understood to extend to witnesses in criminal trials and the provision in the new constitution should not be so understood. We do not propose to go into a discussion, with a view to a definition of 'particular services;' but we are prepared to say, that the services of witnesses in criminal cases are not particular, but are of the class of general services which every man in the community is bound to render for the general as well as his own individual good.

But it is insisted that there is a marked distinction between the case of the general witness and that of the specialist or expert called to give an opinion. Webb vs. Baird 6 Ind., 13, and Gaston vs. Board of Commissioners, etc., 3 Ind. 497, are relied upon to support this distinction and secure the application of the constitutional provision to the case at bar. The court held in the former case that if a statute required the class of persons known as the legal profession to render a service by defending a criminal gratuitously which was not equally demandable of every other class, it would be in violation of the clause of the fundamental law which provides *for a uniform and equal rate of assessment and taxation upon all the citizens* upon the ground that "the law which requires gratuitous services from a particular class in effect imposes a tax to that extent upon that class." Not so here. Persons in every pursuit of life, it may be safely said, are subject to be called experts to speak in court on questions appertaining to the particular domain of life in which they are engaged. The wonders of astronomy no less than the wonders of the human mechanism might in a given case claim attention on the witness stand. Le Verrier, were he in our midst, would be subject by its requirements to interruption in his measurements amongst the fixed stars; Tyndall, to come forth from his laboratory and yield up the combined fruits of his experience and his genius, or Huxley or Herbert Spencer to contribute from their treasures of philosophy whatever might be needed to shed light upon the pending controversy and aid in enforcing the claims of justice or vindicating innocence.

The professions are all equally liable to pay in this way the common tribute they owe to the state or humanity. So of the merchant; manufacturer; the banker; the artisan; the agriculturalist; the mechanic; the mariner. Every employment in the world may have its shade of mystery or cunning not known to mankind at large which may need betimes to be explained by its particular followers. This is here then, no particular burden imposed on a particular class; nor are the services required particular services not required of all alike under similar circumstances. The case cited of Gaston vs. The Board, etc., before referred to, does not militate against this view. There the coroner called a jury to hold an inquest. He directed Dr. Gaston to make a *post mortem* examination. He did it, and for the service filed a claim. The court says: "We have no doubt that in a case where a *post mortem* is really necessary, the coroner may by his employment bind the county to the payment for the sufficiency of professional skill to make the examination. To that extent at least he must be the agent of the county giving authority.

But the case last mentioned is also relied on by counsel for respondent. Here it seems to be quite in point. It is recited in the agreement upon which the decision of the case was predicated, that of the *post mortem*, Gaston was sworn as a witness in the case, and testified to said jury as a witness, AND COMMUNICATED TO THEM THE RESULT OF THAT EXAMINATION, AND HIS OPINION OF THE MEANS BY WHICH SAID SMITHER (the deceased) CAME TO HIS DEATH." And the supreme court distinctly says: "He was entitled to no compensation for that service, so far as the traveling AND GIVING TESTIMONY IN OBEDIENCE TO THE SUBPŒNA WERE CONCERNED, BEYOND THAT OF AN ORDINARY WITNESS. Physicians are not especially privileged in this particular."

And our State constitution further provides that "in all criminal prosecutions the accused shall have the right * * * * to have compulsory process for obtaining witnesses in his favor." Const., Art. 1. It may be insisted that this means only that he shall have such process to bring them into court, but must pay them to their satisfaction or the value of their opinion before requiring them to testify, or that the state or county must do that for the defendant. We then turn to the statute and find it enacted that "in all criminal cases where the party accused shall be acquitted no costs shall be taxed against the state or county for any services rendered in such prosecutions by any * * * * witness," 1st Ind. Stat. 481, Sec. 44. That this provision is constitutional is so thoroughly settled that citation of the cases is uncalled for. Were I therefore at liberty to determine the imprisonment of the petitioner illegal and discharge him, such discharge would necessarily be refused. In my opinion, to have testified on the occasion in question, without fee or reward, was a duty incumbent upon the petitioner as a member of the medical profession, in common with that resting upon the votaries of every profession or calling found within the state; and upon his refusal so to do there was no alternative for the court but to commit, and that therefore, his detention is not wrong or unlawful.

Upon the whole the petitioner must, therefore, be remanded to the custody of the sheriff.

In compliance with the decision of Judge Lowry, Dr. Dills gave his tesmony in the rape trial this afternoon and thus purged himself of contempt. Dr. Buchman was discharged from custody.

While we agree with Judge Lowry in most of the positions assumed by him (for we have examined for ourselves the passages from the authorities cited), still we think the following points will bear another construction than that which he gives. Where he speaks of the provision in the Constitution of Indiana that "no man's particular services shall be demanded without just compensation, nor in case of the state without such compensation first assessed and tendered," he simply quibbles as to the distinction he makes between property or services and the *opinions* born of hard work, nay, purchased in as fair and legal a sense as a piece of real estate could be. The Judge could not have been thinking of an opinion in the rules of expert testimony where there is some reliance to be placed, on an opinion, in fact that bears with it so great a degree of truth and certainty that cases are often decided upon it, but rather of some vague guess that the verriest fool could utter. A guess that cost nothing to acquire, and is of no value when uttered, then indeed would it only be "necessary to set in motion the organs of speech," etc., but the true experts opinion that lays before the jury the laws appertaining to some "department of nature, science, art, life or business not within the common and general observation and knowledge of mankind" comes not in this way but is truly a property and obviously a service that he is *not* required to render without compensation "first assessed and tendered." We admit that the case cited—Israel vs. The State, 8 Ind., is taken to sustain Judge Lowry's position, but in fact, reiterates the same, and therefore it is answered as above.

The Judge cites Webb vs. Baird, 6 Ind., 13, which asserts that if "particular service" be demanded of attorney's which was not equally demanded of any other class, that it would be in violation of the fundamental law which provides for "a *uniform and equal rate of assessment and taxation upon all the citizens*," etc., for this would be "gratuitous service from a particular class which could not be enforced—but the Judge concludes—that it is "not so here," asserting that experts—or those having intimate knowledge of all science, arts, etc., as La Verrier, Tyndall, Huxley and Herbert Spencer, the merchant, the manufacturer, the artisan, etc., are all liable to be called to give opinions, and conclude that "therefore there is no particular burden imposed on a particular class" nor, "are the services required particular services not required of all alike under similar circumstances."

The Judge evidently overlooked the fact that attorneys are not so far removed from others that are capable of "rendering particular service," that they should be placed in a class by themselves.

It has been admitted by him that attorneys shall receive compensation if ordered by court to defend a criminal, this then is "particular service," and further on he admits the justice of the decision in the case of Gaston vs. Marion Co. When the physician was allowed pay for post mortem examination, this too was "particular service" to be paid for because all classes could not have performed it. Now, then as to experts, not physicians only, but experts upon any subject. Can physicians give an opinion upon the laws of astronomy as La Verrier could? Could *any one* but he who has a knowledge of the science or art act as an expert therein? Certainly not—then is it not imposing a tax or assessment upon the time of such Astronomical expert — for no one else can be so taxed.

It is a principle well established that a judge can at his option order the expert to be paid, either before or after he testifies but so may he take the optional privilege not to order such recompense that the uncertainty ought to be removed.

The case above mentioned has been, we believe, appealed to the Supreme Court, if that court support the views *in toto*, of Judge Lowry and thus settle the point that experts may be made to testify without recompense, nothing is left but a hope that the Legislature may in its wisdom, make a statutory provision that experts *shall* be paid when subpœnaed in any case civil or criminal. As it stands now, it is unsafe for medical witnesses to refuse to give evidence even though they be not given the time to prepare for examination, or though they may waste hours or days without pay.

Until this question is settled by the Supreme Court, or by statutory provision we would recommend every physician of this state, when subpœnaed, to obey such writ, but when called to give an opinion as an expert, and his request for pay has been refused, simply to state that he is not an expert, or else state promptly. "I have no opinion, but a non-professional one."

Certainly if one does not consider himself an expert his testimony will not be counted, or if he has no opinion, no court can force him to form one.

This presumes that all physicians, or nearly all will look upon this subject as one of common interest and that all will so act that their testimony will not be ordered or even permitted—the court will have to do without expert opinion or offer to pay some one to become such.

We are aware that this would not be the proper course to pursue except under the circumstances, but this is all that is left the profession and we believe it to be the only plan even looking toward a cure of the evil we know exists. Will the physicians take this stand until the question is settled by the higher courts or legislature? It is as safe as effectual, for it would be simply monstrous to disturb a witness either because he knew nothing of the facts, or had no good professional opinion upon a hypothetical case.

We are aware that the following case has been relied upon by some (we believe it decided the course of action of Drs. Dill & Buchman in the case reviewed) to sustain beyond cavil the position that by common law a medical witness must receive compensation before testifying if he demands it. In this case the court said in speaking of Dr. Hammond as an expert witness:

"A witness meets the requirements of a subpœna if he appears in court when required to testify, and gives proper impromptu answers to such questions as are put to him. He cannot be required by virtue of the subpœna to examine the case, to use his skill and knowledge to form an opinion, nor attend, hear and consider the testimony given so as to be qualified to give a deliberate opinion in a question of science arising upon such testimony." Now, the words: "He cannot be required by virtue of the subpœna to examine the case to use his skill and knowledge to form an opinion, etc." Should only teach us that we *need not have an opinion*, and if this is the case the court cannot compel us to form one, but this is not the course generally taken by physicians, nor was it the one adopted by Drs. Dill & Buchman, if we understood correctly. Often physicians are not asked if they are experts, but that point being assumed, they are directly asked to give an opinion. If they make reply that they desire their compensation before delivering such, they at once yield the whole point and lay themselves liable, at the option of the court, to either answer, or be imprisoned, for this, if it be not a direct acknowledgment, still an implied one that they have an opinion.

The principle enunciated in this decision will therefore, if rightly understood assist us, but if relied upon as a settlement of the question in controversy in the Fort Wayne case will lead us into trouble.

Wharton, § 456, page 424, upon expert fees says: "It is not contrary to the policy of the law that an expert shall be specially paid, so that the testimony of competant scientific men can be obtained without loss to themselves." But this is only expressing a truism that we all acknowledge, there is nothing in the policy of the law contrary to this, but still nothing which says he *shall be paid.* As this passage has often been quoted to sustain the proper view of the question, we fear it may mislead as has the New York case mentioned.

Although not touched upon in the case referred above, still it is a point in medical evidence; we wish to say a word as to confidential communications. It is a wide spread belief among physicians that all communications made by a party to his medical attendant which are necessary to conduct the case, and indeed all knowledge of circumstance connected therewith gained by the physician in consequence of his attendance upon the case and referring thereto are inviolably confidential, not only morally so, but that we cannot even compel him to divulge such knowledge. The true status of the question is this, by common law, communications made by clients to attorneys, which are necessary to aid in conducting any case are confidential, but if such client shall communicate facts relating to commission of crimes, etc., which facts are not necessary to be known by the attorney in the case he is employed upon, then they are not confidential, in the former case they are so only upon the ground, that as it is necessary for the attorney to know all the facts in the case, if he were allowed to divulge therein testimony, it would be in fact, the same as the client criminating himself, which is not permitted. The same rule has generally been applied to Catholic Priests but not to Protestant Clergymen; communications between husband and wife are confidential, thus far the legal rule applies, but no further, except it be applied by statutory provision. It is true, however, that the moral right as to the duty of physicians to keep inviolable, any knowledge given by reason of the direct professional connection with his patient remains in full force, and even if called to testify to such facts it is his duty to protest upon such grounds, but the court can we think, compel him to testify to knowledge thus given materially upon the case.

The spirit of the common law (as now interpreted by authorities) with reference to the difference between attorney and client, and physician and patient, in this respect seems to be based apon the idea that although knowledge relating to the clients crime, etc., is necessary to be known to the attorney, it is not so between the physician and patient. A physician it is assumed can treat a fracture gained in an encounter in which the patient has taken life, without knowledge gained by confession o the patient as to such killing, and if he voluntarily admits the crime it is simply the same as confessing to any party whatever, so in case of suspected rape, a physician who may have had charge of the accused at the time of the rape is suspected to have occurred may be made to testify as to the fact, whether or not the accused was affected with any "loathsome disease" that might be communicated to the party accusing, upon the principle that as it was not necessary for the physician to know anything about the crime to treat the case, that it could not under any legal rule be held "confidential."

Even where this question is regulated by statutory enactment, as in New York, knowledge gained, otherwise confidential, is not so considered in testamentary cases. And facts gained by means of autopsies are not included under provisions of such statutes. The New York statute is as follows:

"No person duly authorized to practice physic or surgery shall be allowed to disclose any information which he may have acquired in attending any patient *in a professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or to do any act as a surgeon.*" The gist of this we have italicized. This does not apply to autopsies, and it has been held by a ruling, under this statute that such knowledge was excluded (see the Vanderbilt case)—and as to the non-application of such statute to testamentary cases, the opinion of Surrogate Bradford given in 1850 and still in force in that court (John Harrison's will vs. Public Administrator (Bradford, Surrogates report 221), places this point in a clear light. "The provision of the revised statutes that a physician shall not be allowed to disclose any information which he may have acquired in attending any patient in a professional character, and which information was necessary to enable him to prescribe for such patient," is not applicable to the physician of a deceased person, in a testamentary cause concerning the probate of the will of such decedent. The statute does not establish a general and absolute prohibitions of such testimony in all cases; but secures a personal privilege to the party, not to the witness which may be waived."

We think the views we have expressed are correct ones and that if our advice is taken by physicians generally, it will not mislead. Let us have a clear idea of our rights, privileges and liabilities, and not engage in useless controversy with courts; but if any point, just in itself remains obscure to the profession, imitate the emample of Drs. Dill & Buchman, in this respect at least, make a test case and have the matter settled. S.

INDIANAPOLIS, INDIANA.

* * *

Editorial.

This number begins the thirty-ninth volume of the LANCET AND OBSERVER. With its issuance we take plaeasure in returning thanks to the numerous friends of the journal who have in the past so generously sustained us in our labors. The policy of the journal as an independent organ of the medical profession ot the West will be maintained. In matters of scientific interest our pages are always open to reputable practitioners. For personal, society or school animosities, we have no space, it is all engaged. From the time the journal came into the hands of the present editor, he has endeavored to constantly add to its value, both in the character and quantity of its contents, in the latter direction much has been accomplished, the amount of reading matter has been almost doubled within the past four years. The subscription price has scarcely been changed, previous to that time subscribers paid $3.00 per annum and the postage. While the present rate is $3.50 and the postage prepaid. We have in view other and valuable improvements to be made in the not distant future, in order to their early appearance, we must have a large addition to our subscription list. If every subscriber will evince his desire to see the contemplated improvement by sending us one, two, three, or a dozen new names, that improvement will very quickly be made perceptible. The more names received the more improvement, will be our guide. In all such matters the journal belongs to its supporters, the more active they are in its interest, the greater the benefit they will receive.

The rapid strides in nearly all departments of medicine within the past few years makes medical journals a necessity to the active practitioner. The time has gone by if indeed it ever existed, when a man could subsist his medical intellect on a pabulum gathered from a few old books, necessarily purchased when a student. In point of fact it is impossible for even new books to keep pace with the live journals that are published in every large city in the civilized world.

The first thoughts of the first men in the profession are given to the journals, and from the journals those thoughts are afterwards compiled into books. So it is that the first and leading practitioners in town or country are found to be subscribers to the leading journals. And generally the man who has the most business takes the most journals and reads them, he is always able to tell his neighbor of the latest discovery or invention in medicine, his journals supply his intellectual food, his brain craves and absorbs their contents as his stomach does bread and meat, he must and will have them.

Journals afford the cheapest reading matter a man can obtain; last year the LANCET AND OBSERVER contained twelve hundred pages of reading matter, a very large volume; this year it will not be less, affording its readers a very large amount of reading for a comparatively small outlay. Again, we say to our friends: send us a club of names, the more the better, and give your optics an opportunity to see the improvements we purpose making in the LANCET AND OBSERVER.

IN the treatment of infantile diarrhœa produced by imperfect digestion, we have had most satisfactory results from the use of lactopeptine, also in cases of impaired digestion in old persons. This is one of the most valuable pharmaceutical preparations that has been placed in the hands of the profession. We take pleasure in attesting to its value from a considerable experience in the use of it.

ST. LOUIS Medical and Surgical Journal. Drs. William S. Edgar and D. V. Dean have retired from the editorship of this journal; the former on account of failing health, and the latter in consequence of press of other business. They are to be succeeded by Drs. Thos. F. Rumbold and Hiram Christopher.

A CARD.

WM. S. MERRELL & CO. of Cincinnati,

TO THE MEDICAL PROFESSION.

We respectfully invite attention to the last sixteen pages of the present number of this Journal; devoted to descriptions of a *few leading articles* from the long list of medical agents of our production; which embraces full lines of Fluid Extracts, (many of them prepared wholly from the green root or plant); Powdered Alcoholic and Solid Extracts; Resinoids; Tinctures; Ethereal Oils; Sugar Coated Pills; and many very valuable Special Preparations.

IMPROVEMENT IN QUALITY OF MEDICINES.

The following suggestions are addressed to the intelligent, progressive, liberal minded practitioners of all schools :—those who are truly "*Eclectic*," in the sense that they are seekers after the most valuable and reliable medical agents, from whatever source obtained.

In the experience of a quarter century, our firm has seen the crudities and absurdities of ignorance or indifference gradually giving way to the advances of a spirit of intelligence and close discrimination which has marked the changes in the direction of medical reform. To those of the profession best acquainted with our record, it is hardly necessary to say that our efforts have always been directed toward the establishment of a higher standard of excellence in medicine.

The past few years have been a season of more than usual activity in the introduction of new and comparatively unknown remedies; many old ones, also, long since laid aside, have been brought forward with a great flourish, and heralded forth as new discoveries; while too little attention has been paid to the *perfecting* of well known remedial agents which stand out prominently as the most valuable contents of a Physician's pocket case.

A desire for *cheaper medicines* has been one of the dangerous, demoralizing influences with which conscientious manufacturers have had to contend; an impression having taken possession of the minds of many physicians, that good, reliable medicines can be made and sold for the same price as poor ones. Taking advantage of this delusion; manufacturing establishments have risen and flourished, for a time, by the introduction and sale of preparations wholly unfit for medical use;—but experience teaches, sooner or later, that *reduction in price* generally means *deterioration in quality*. It is for the Profession to check this downward tendency, by making it understood that they are willing to pay *fair* prices for medicines of reliable quality.

"I am greatly pleased with the character and quality of your preparations, for they are reliable; and though the prices are somewhat higher than I have been paying elsewhere, I must have them, as I cannot practice satisfactorily without them."

The above is the candid expression of one of our customers, a distinguished practitioner;—it has the true ring—sounds the key note—indicating the basis upon which we aim to sustain our reputation of past years; believing that *quality* before *price* is what all intelligent physicians will ultimately require; therefore, while our preparations will always be sold as low as others of *equal quality*, we do not put them in the market to compete on a basis of *price alone*.

CINCINNATI, Jan. 1st. 1878.

Turn to Adv. pages [illegible] to [illegible]

The Ear; Its Anatomy, Physiology, and Diseases. A Practical Treatise for the use of Medical Students and Practitioners: by Charles H. Burnett, A. M., M. D. With eighty-seven Illustrations. Philadelphia: Henry C. Lea.

This is a work containing more than 600 pages, and is divided into two parts. Part first is devoted to the anatomy and physiology of the ear, and is divided into three sections. The first treats of the external ear; the second of the middle ear; and the third of the internal ear. Part second is devoted to the examination of patients, and the different diseases, treatment etc., of the various parts of the ear, following the order given in the first part of the work. It is evident that the author has taken considerable time in the preparation of this work, as he has devoted nearly one-third of it to anatomy and physiology. Physicians, as a rule, pay very little attention to this subject, and consequently are not very well acquainted with the anatomy, or different diseases that attack the various parts of this complex organ. To those who wish to investigate this subject, we would recommend the work before us. It is it well written and contains a vast amount of valuable information. W. R. A.

Outlines of Modern Chemistry. Organic; Based in part upon Richies' Manuel de Chemie. By C. Gilbert Wheeler, Professor of Chemistry in the University of Chicago. pp. 231. A. S. Barnes & Co.

This is a neat little volume in which a subject of almost unlimited extent is very judiciously condensed. The author correctly states, that "It would have been easier to prepare a larger work. From the bewildering wealth of results afforded by the labors of investigators in this branch of sience, the appropriate selection of that suited to the wants of students, was by no means an easy task."

For the purpose for which it was written, namely: as a condensed outline of a great subject, we take pleasure in commending it to the notice of medical students and educators. J. B. H.

DR. THOMAS DWIGHT, for five years one of the Editors of the "Boston Medical and Surgical Journal" retires leaving Dr. J. Collins Warren as editor-in-chief.

A number of reviews are crowded over to the next number.

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THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

Vol. XXI.—FEBRUARY, 1878.—No. 2.

Original Communications.

Article 1. — Nervorum Erethismus, or, Nervous Debility.

Read before the Delaware County Medical Association, December 11, 1877,

By SILAS W. FOWLER, M. D., DELAWARE, OHIO.

Of the many parts that combine to complete the stupendous whole of the human organism, the nervous seems to be most deeply and most mysteriously hidden in regard to its wonderful workings. By it, we are what we are, and through it we are connected with the world. This being true, is it any wonder that all, to a greater or less degree, are liable to be effected with "nerve debility." And as occurring among all classes and conditions of society, has, and continues to excite much speculation, as to the change taking place in the nerve substance. Admitting a subtle change taking place in the nerve structure and more hidden than the change existing in other forms of diseases. There seems to be no theory more tangible than that of various influences acting to interrupt the normal nutritive equilibrium.

Unscientific as the statement may seem, we must found this subtle molicular change on the true principles of physiology. There must be a most thorough investigation of the pervertive action of organization causing this exhaustion and so-called functional disturbance. Our knowledge regarding various other forms of diseases have been, and are wonderfully advancing, during the last few years! The many organic lesions of nerve structure have been so thoroughly investigated and so clearly elucidated that by a careful differential diagnosis, their detection and prognosis need not be any longer a matter of speculation. The peculiar interminglings of the vessicular "neurine," or, "nerve cells," and the intimate communication with each other, together with the rapid transmission of the various external impressions, operating on the periphery and through the whole course of the tubular neurine, or, "nerve fibre," to the brain, has been, and may remain a profound mystery to us.

It has been shown there are different nerves transmitting different external impressions to the centres through the course of the nerve fibres, and that one nerve does transmit one impulse and another a different one, is of much practical importance to us; but for us to say we have any true knowledge as to the *modus operandi* of transmission; would be equally as absurd and speculative as to say what moves the wheels of a watch without knowing the true motor power.

Yet, we have some knowledge, and are acquainted with some of the requisite conditions to maintain this force we call nerve force, to carry on the transportation and reception of external impressions or influences, acting upon the peripheral branches, and when interrupted or interfered with, it will grow less and less in endurance. Thus, we readily see the importance of understanding these physiological conditions that sustain this nutritive change, and those influences acting to retard them. The whole nervous organism being like all other tissue, liable to growth and decay, is much more liable to functional debility, and more frequent interruptions from various substances, furnished through the medium of the blood, and the external impressions transmitted to the brain through the medium of the nerve fibres.

It is upon these physiological laws, and from the absence of a more advanced knowledge regarding the interruption of the normal molecular change, generating nerve force and generating functional nerve troubles, or, "nerve debility," must be founded.

When we carefully study these cases, admission must be made that the trouble to a large extent, if not entirely, depends on an improper change in the vessicular neurine or nerve substance, and resulting therefrom nerve debility and many forms of mental diseases. Should proper neutriment be taken and no influence acting on the cell to hinder in the normal reproduction in the brain and ganglions, as well as in their intercommunication with the tubular neurine, we will have a perfect transmission and reception of the various external impressions acting on the periphery.

There will be an equal destruction and reproduction of nerve cells, each cell receiving and imparting to the new cell formation its personal identity. These cells combine and re-combine the received impressions into new forms and new arrangements, but just how they carry on this combining process, is as far from us as how the union of elements of various kinds taken into the body causes life or vital force, or the union of certain elements or molecules causes the electric spark; yet, each in turn is worked and controled by a law. We trace throughout all organic law, but yet are unable to understand this cell destruction and reproduction in different periods of life changes. The former to a large extent predominating in advanced age, the latter in early life. The reproduction is stimulated to greater activity from proper excitation and stimulation. The destruction hastened from an over excitation and undue stimulation, or for the want of proper excitation and stimulation.

The relative connection of the vessicular neurine and the tubular neurine, the impression made and the action resulting therefrom in health, are nearly equal. But this action resulting from the external influence or the combining afterward causes this destruction of cells and necessitates nutrition to replace the cells destroyed.

Hence, we say the forms of nerve debility are numerous and varied, and the agents acting perniciously to destroy the normal relative connection, and thus causing debility, are in a manner unlimited. But when the unbroken whole is kept within a proper radius of stimulant excitement, and the brain within a proper limit of application, there will be an increase of nerve force and endurance, and the molecular action will secure a proper nutritive action.

Thus, it is of the greatest importance to acutely observe these initiatory symptoms of over stimulation of the brain and nervous system early, and thus be able to guard against subsequent results.

The parents and the teachers should be the guardians of those intellects entrusted to their care. The instruction given by both, for the purpose of building up a herculean physique or a giant intellect in these more or less tender mental shoots, I am sorry to say, are only too frequently in direct violation of the great physiological laws governing organization. They dwarf 'ere they begin to grow, from over-stimulation, or from the want of proper stimulation.

The more modern idea is to excite the mind and enrich it by innumeral external impressions, thus indulging in the vain hope that this broad distribution of mental seed will bring forth a bountiful harvest of thought. Forgetting that, thus imposing upon the delicate cell formation beyond a limit of endurance, and without time to establish reason and judgment will produce undue excitation, by exhaustion or debility.

The great complex body of instructors themselves, suffering from nervous debility to a great or less degree, neglect and fail to remove the acting agents causing nerve debility, and thus, by the neglect of prophylactic means prevent subsequent dangers sure to follow. It is when this mental twig should be fast gathering external impressions for growth and development by the watched care of the mental husbandman, we are made to witness only too frequently, through this mismanagement, one after another drifting out on the broad ocean of thought, without any sail of purpose or rudder of correct ideas, and sooner or later come drifting to the shore of nervous debility, and finally, are dashed on the rocks of mental diseases. While here and there is one retaining that perfect state of cell nutrition, pushes boldly onward and upward needing no attention and receiving less. Through his own efforts he is manned and equipped for the wild billows on the ocean of life. But, when he is rapidly ascending to giddy hights of greatness, assistance is rendered.

One great trouble is because of the large number of these complex mental engines being entrusted or forced upon one to care for, and who has not the requisite time to care for and study the delicate workings of each, as well as the best mode of teaching the complex system of study.

Anatomical Change.—In this form of trouble, as yet, we have no means of stating positively what change is taking place. The opportunities for making post mortem examinations, and using the microscope in functional nerve troubles, or, nerve debility, can not be had, and if an opportunity should be offered, I am of the opinion nothing would be detected, however minutely our investigation should be made.

Hence, it is we draw our conclusions from the law of cause and effect. But just how concussion and irritation of the brain cause suspension of the cells receiving and retaining external impressions, and a disturbance of the whole organism, is as yet, only speculative. That there is a lowering of vital energy, derangement of the secretions to a greater or less degree, without any trace of organic lesion, is, I think, beyond all possible doubt. And that there is a changed condition manifested by well marked symptoms, which are removed by restoring the normal nutritive equilibrium, none will question. And that if any injurious external influences are permitted to act on the brain and nervous system continually, greater dangers, and even organic changes will, and do follow, all will endorse.

Symptoms and Course.—Each and every individual in the great battle of life, under peculiar uncertainty of affairs, such as, ocillations of business enterprises, domestic variances, in the great political tumults in countries where they are frequent and numerous, the mind from the combining and re-combining the impressions becomes restless, and is continually feeding up with anticipations these delicate nerve cells; up to the time when the battle is lost or won, and in the great struggle for superiority of greatness, etc., will each in turn manifest those marked symptoms of nerve debility. There will be more or less disinclination to physical exertion, or to mental appliction, and if not at once promptly met will go on to more or less derangement of the organs and nerve paresis, and yet suffer no organic change.

More especially, will both the old and the young, according to amount of nutritive change, show and complain of certain symptoms that are wonderfully pathognomonic of incipient nerve debility.

There will be a peculiar restless disposition during mental application, however slight or intense the application may be. There will be a want of coherency, which is very annoying to the instructor, and is liable to be mistaken for or confounded with carelessness, or waywardness. A peculiar inaptitude and, a dislike or unwillingness for mental application, and may be taken for incapacity for mental culture. A greater or less confusion of ideas or impressions, which causes a loss of confidence or individuality.

These precursory symptoms are wonderfully and quickly followed up by those of the second stage, and to a limited extent, attracts our attention. A limited application of mind will induce the older, and cause the younger to seek rest, because of the languid feeling of body and mind. We will also see undue excitability of the brain and nervous system. A remarkable preternatural acuteness often manifests itself, and which is taken for great mental power and remarkable nerve vigor! This is not the case, as a small amount of work causes exhaustion, and at a later period weakness. And in proportion to the diminution of nerve force or debility and exhaustion, so the increase of excitability and mobility and the impulse of comparatively short duration.

The peculiar rest known only to the brain and nervous system, that temporary non-organic metaphysical death becomes disturbed and less and less complete. It loses that wonderful tranquility as well as the power of regaining and renewing the lost strength. The power for succeeding influences is gone.

Intead of this languid morose feeling being followed by new vigor and renewal of energies, we only have it to a limited extent. The repose is of short duration, is feverish and unsatisfactory, followed by cappilliary distension and a general uneasiness of the whole body. But notwithstanding the remarkable symptoms of the first and second stages, little or no attention is given them until the third stage is ushered in upon us, when we are compelled to give them our attention.

We now have more headache, and which is an indicatory symptom of debility. The pain in character is like that of neuralgia, of a nerve fibre suffering from debility or the headache may be hyperæsthetic. In the former, loss of sensibility, in the latter, great sensibility to impressions along with the debility. The two forms are very distinct and require very different treatment. What will relieve the one will excite the other. One will require stimulation to excite molecular change, the other sedation and tonicity. There will be dizziness of a more or less distressing character and may come from other influences, but is nevertheless, of a very different character.

When coming from debility, it is dynamic, and is occasioned without any change in the circulation of the blood and much like the feeling occasioned by reeling around, results from an abnormal dynamic change in the nerve cell, and always become greater in proportion to the debility, and following this there is a loss of coördination of thought and motion, loss of appetite, some vomiting from inhibitory action, and of a different nature from gastric derangement; constipation of the bowels; lastly, pyrexia, occurring whenever there is an attempt at too much exertion either physical or mental.

In the beginning there was a rapid wasting or destruction of the vessicular neurine, and this necessitated a more rapid supply of nutritive material and dynamic force for their reproduction.

The impressions acting on nerve cells, either by various agents through the medium of the blood, or by the impressions through the medium of the nerve fibres may and do influence a physiological or a pathological change in the nerve cells. When the former at the destruction of the parent cell, there will be a reproduction of a new one, and receiving the formers personal identity. But when a pathological change, for such it may be called, there is a change in cell reproduction to nearly a suspension.

Many derangements of the nervous system which were considered at one time only functional, have by later investigations, and through the valuable aid of the microscope, proven them to be truly organic and having a true pathology. From this, many were led to doubt the existence of functional nerve trouble, but as investigation was made more thorough, the more erudite readily endorsed the doctrine of a disturbed nutritive equilibrium or a dynamic change in the vessicular neurine, and which could be restored by proper nutriment and the removal of the influencing agent. From these investigations and conclusions they received the name, Functional Diseases.

So far there has been no organic change of structure found, but by the conservation of energy, where nutrition is supplied and the obstructive action removed, healthy action is re-established without any trace of organic change in the nerve structure. Hence, called a dynamic change in cell structure. But when the nutritive change is actively going on by this conservation of energy, the parent cell regularly imparts to the newly formed one its personal identity and sustaining force of impressions made.

These important changes in a physiological conditions are continually taking place with due regularity of dynamic law, that is nutrition and destruction sustaining a normal relation, the augmentation and diminution going on with the same regularity and the entirety invariably remaining unchanged. But through externality we may and do bring about a change or disturbed and exhausted condition of this energy and more so in the brain than any other organ.

When any of the other organs are overtasked in their functional activity they only perform a portion of the work required of them. The kidneys increase in functional activity to relieve over stimulation of the liver. The liver in turn increases in activity even to organic derangement to relieve over excitation of pulmonic tissue. But not so with this great system which regulates in action the stupendous whole. It alone must be able to sustain itself against all influences acting upon it or exhaust, and break down.

Hence, we claim when this governing power or system is properly impressed and then sustained there will be healthy mental action, great endurance and following a rest peculiar to itself. But should it be improperly impressed beyond the limit of endurance we will have a nervous disturbance and a diminished dynamic force. There will be a failure to secure that normal repose so essential for the renovation of nerve tissue. Let there be undue stimulation and we will witness more or less excitement which gives to the nerve structure a wonderful preternatural acuteness which we may think indicative of great mental power, and will for a limited time assist incarrying on work which otherwise would be left incomplete. Yet, at the same time accelerating the functional disturbance and nervous debility, and if not carefully protected from too frequent repitition will result in organic change of nerve structure.

Treatment.—We must be extremely careful and not make a serious mistake and refer these primary symptoms of functional derangement of the pneumo-gastric nerve to some derangement of the stomach, liver, or other abdominal organ, and thus direct our treatment to some organ only secondarily affected, and the time for affording relief will be lost and the trouble permitted to go on unrelieved.

I would say it is most interesting to gain a full and correct history of the primary, as well as the advanced stage, and carefully study the case through. But in the application of remedial agents, as well as giving instruction, each will have their own peculiar views and equally as many formulas. But we can safely say, from commensurative signs, there are certain principles upon which all will agree.

The first and most important object to be secured is rest, *absolute* rest, and by so doing the exhausted brain and nervous system may be permitted to regain the lost power or vigor; that the lost or interrupted nutritive equilibrium may be again restored.

You ask how long should the rest and quietude be continued? Long enough to restore to a normal healthy action, even if that be only for a few hours or days, or even weeks. All worry, excitecitement, anxiety and mental labor must be most strictly interdicted, and if this can not be done, or is not done, one of the greatest principles is violated.

In the next place we must direct our attention and labors to furnishing proper nutriment to the nervous system and to the prevention of those influences acting through the medium of the blood, and more especially, through the medium of the nerve fibres from impressions made on the periphera.

When we have to deal directly with the trouble already set up we must aim at a rational treatment for the removal of the exciting cause, and the immediate restoration of the disturbed function. As to the nutriment required, nothing will be said, for it being patent to each prescriber what is best and what is not best. As we have many valuable articles from the pens of the most profound thinkers and investigators, we will more especially direct our attention to the prevention of the trouble.

During early life there exists a strong predisposition to functional nerve trouble or disturbance, but gradually decreases with increase of years of the child. Certain impressions made during childhood by both parent and teacher, may be borne without any apparent injury at the time, but producing a change in nerve structure which can be plainly witnessed in more advanced years. The many violent, and sudden unlooked-for and unsuspected sounds, acting on the auditory nerve, and transmitted to the brain. The frightful stories told so often to children, constitutes a fruitful field for nerve debility, if not organic trouble in adult life.

A neglect of moral instructions regarding certain pernicious habits, and proper education as to many vices, and overstimulation of the passions in early life, are only too frequently promotors of this and other forms of lamentable trouble, unkindness, too rigid discipline without reason and judgment; nonattention or improper instruction in the mode of studying and recitation, failure in encouragement, continued depression and discontenting the child's mind by exciting hatred and jealousy, are all promoters of, and bring about, sooner or later, more or less nervous derangement and debility. Thus we can see preventative treatment should and does occupy one, if not the greatest place in the treatment of nerve debility.

In the next place, when we have to deal more directly with the trouble in the primary, or even in the more advanced state, empiricism long since has failed to meet the indications and relieve the trouble. Thus it is we must rely upon a more rational treatment. The *materies morbi* of the blood must be promptly met and so far as possible remove them. The pernicious vice and habits being practiced and indulged in, and acting so powerfully to destroy dynamic force or energy, must be interdicted, punished and stopped. And by so doing reestablish the weakened conservative energy.

Case 1.—M. H.; æt. 19; student; son of a lawyer; was strong and healthy up to 18 years, when he began certain immoral practices, and later was suffering from spermatorrhœa and loss of memory; was sad and morose; was extremely nervous and irritable. Any mental application caused dizziness, roaring in the head, disinclination to physical or mental exertion, general weakness; more or less neuralgic pain, sick stomach, constipation, inability to sleep and some fever. Interdicted *all* mental work and pernicious habits; advised plenty of out-door exercise, or enough to make him weary; good, nutritions diet; warm and cold baths every day; tinc. chloridi ferri xx. gt. ts. in a wine-glass of water *ter die*; brom. pot. and brom. amm. áá grs. xxx., followed in one hour with gr. $\frac{1}{80}$ of sulph. atropia on going to bed. Began at once to sleep regularly at night; continued treatment for some six weeks with slight variations as he began to improve, when he was discharged with no return of trouble.

Case 2.—Wm. S.; æt. 21; male; sedentary habits; was dissipated and had been for three years, and at times drinking and debauching to excess; had a peculiar catarrhal trouble of long standing, but which readily yielded to treatment. He like the first patient was suffering from nerve debility, and had all the symptoms above mentioned. Prescribed absolute rest from mental work, but plenty of out-door exercise; warm bath alternated with the cold bath; pill of sulph. iron, rhubarb, belladona and nux-vomica for the bowels, and dilute phosphoric acid, with plenty of nutrition. He began to improve, and after three months was cured; when he consulted me again regarding settling down with a wife, which he did, and now after two years his health remains good.

The class of cases to which these two mentioned belong, require stimulation and tonics; but we have other forms where there has been undue excitability of the nerve centers, and which require a different treatment to remove the undue tension or excitation causing exhaustion. Here the excitement from losing friends by death, where there has been strong attachment existing. Losing position of honor, fame or trust, inordinant amount of mental application, the frequent debauch of party and club meetings; and hours use by the foregoing instead of permitting this system to take that rest so much demanded, in time conquers the desire for sleep and tends to bring about that change in nerve structure which produces nerve exhaustion, and only can be remedied by the entire removal of the influencing agent and using agents that bring about rest.

Case 1—M. G.; female; æt. 22; delicate constitution; was in tolerably good health up to the time of losing both parents, when the care of a large family without any means of support fell on her. She worried day and night, and soon began to suffer with pain in her head; bowels became constipated; appetite lost; and following amenorrhœa. Applied for assistance and was ordered perfect quietude. Prescribed brom. pot. xxx. grs. to be repeated in two hours if restless; also, mistura precipitate, carb. iron and conium, to be taken during the day; also, a pill of aloes, sulph. iron and ex. hyoscyamus and ex. belladonna to move the bowels; in conjunction with plenty of good nutritious diet. She made a rapid and speedy recovery, and in six weeks she had her regular menstruation for the first time in three months. One year after dismissal she lost a sister, after which I was again counseled, she again suffering from nearly the same set of symptoms, as well as vomiting most persistent and with some fever; said she had taken remedies to stop the vomiting and cathartics to move her bowels, but all to no effect. Prescribed brom. pot. gr. xxx, brom. amm. gr. xx, atropia sulph.

gr. $\frac{1}{80}$ at bed time, and two com. cath. pills, the former to be repeated *ter die* for three days. Vomiting after first dose stopped, bowels moved freely, after which she slept 12 hours and awoke feeling much better. Repeated the above mixture, with plenty of good diet and warm hip baths; in five weeks was feeling perfectly healthy; in eight weeks menstruation began.

The following will be a history of one case out of many occurring in school children, and for want of time and already having wearied you, will not give any more:

Case 1.—G. G. F., æt. 9; male; was a strong, hearty child; no hereditary trouble; a member of the public schools; began to complain of dizziness in the head and headache; there was general inaptitude, a disinclination to mental or physical exertion; pain in the eyes when using them; the anxiety of the parents kept him at school; soon he complained of sick stomach; restlessness during sleep; bowels irregular and appetite poor; he lost rapidly in flesh. Ordered his removal from school and from all worry, study, and excitement; enjoined perfect rest, as far as possible, from all mental work, and to be surrounded with those amusements that were pleasing. Prescribed brom. pot. gr. xx. sulph. atropia gr. $\frac{1}{100}$ at bed time each night, and milk and other food easy of digestion. He got rest and he made a speedy recovery, and after four weeks was able to return to his studies without any return of the troubles. Once or twice during the past two years he had occasion to repeat the treatment, but the trouble rapidly disappeared, and now he is strong and hearty.

Case 2.—Child; æt. 6 months; became frightened at the noise made by the whistle of an engine, and following days would remain awake 20 hours out of the 24; was restless most of the time and nursed poorly. I was told this was of two months standing, and the child was getting very poor. Prescribed elixir. brom. pot. (iv. gr.) to be repeated in one hour if restless, just before going to bed each night. Child began to sleep and to take the nurse, and made a rapid recovery.

In conclusion, will say we can not give the latter class of cases too early attention, for they are frequently occurring. I could give the history of many cases where there has been some improvement, and yet, with more or less nerve debility, but are not under our immediate care. In one or two cases there was slight paralysis, which passed away when restoration began. Another would have a return of the symptoms when resuming mental work,but on being taken away from study improved at once; enjoying out door exercise became healthy and strong. The use of electricity is to excite or influence the action of the nerve force, to carry on nutrition.

Art. 2.—The Management of Drunkards.

Read Before the Cincinnati Medical Society

By R. B. DAVY, M. D., Cincinnati, Ohio.

In the July number, 1877, of the LANCET AND OBSERVER is an article by Dr. McElroy giving the results of a new method of treatment for drunkenness. This treatment consists in depleting the system of the already weakened patient by the administration of large doses of calomel and ipecacuanha. The case reported by Dr. Wiseman at the last meeting of this society was treated in the same way, and the doctor thinks a permanent cure has been effected.

I am not disposed to cavil with this new departure, or anything which promises good in this lamentable trouble, but I think nothing is easier than to be deceived when you are devoted to a pet theory. The ruling idea of the treatment is to change the molecular structures of the body, causing the old to be cast off and new substance to take its place, until the degraded and miserable drunkard is transformed into a sober, hearty man. No attempt is made to locate the seat of the disease, but reference is at once made to the stomach and system generally as being the part or parts affected.

I am inclined to think once and always that this weakness or disease is primarily located in the brain. Physiologists tell us that the appetite for food and water is located in the system at large, and the sensations of hunger and thirst do not originate in the stomach, but are only reflected to this organ. I am inclined to think, however, that a study of some pathological conditions will modify these conclusions somewhat. In partial paralysis of the body, the affected part may be compared to an individual undergoing starvation. It receives a diminished supply of blood, and molecular change and atrophy take place, yet it has no manner of effect towards increasing the appetite. Now if the general wants of the system had such especial and unexceptional effect upon the appetite, it would certainly be apparent in cases where almost half of the body is really suffering, and this when the nervous connection is apparently sufficient to make the wants manifest. Take another example, the preponderance of development in the right side of the body in health. We may imagine that the left side of the body is suffering because its development does not keep pace with that of the right. If it suffers in this way, it is never made known through the appetite. Where is the true location of the sense of hunger then? The answer is, in the brain.

We can create in our minds a faculty, fortified within the interior of the brain, whose office is to test the blood which surrounds and bathes it; and when, from lack of its solid or fluid constituents, it fails to satisfy this faculty or organ, the usual demand is made upon the stomach. Let us commence this inquiry then in the belief that the sense of hunger is really connected with the brain. If it was at all doubted that ordinary hunger and thirst originate in the brain, I cannot believe that anyone would deny the same to abnormal hunger and thirst. It is a plain perversion of the faculty we have made to preside over the changing status of the blood, when an individual craves opium instead of food, and whisky instead of water.

Let us turn now, and inquire what parts of the body change most during the fever-process. Unfortunately I have no statistics to offer in this particular connection, but every one can form an approximate idea of the truth, after seeing a convalescent from typhoid fever or, a case of advanced pulmonary consumption. The fat is evidently, all gone: the muscles have shrunken into thin strings one-third their natural size, but the nervous system is comparatively the same. In evidence of this you see the weakness or complete loss of power of the muscles, while the mind remains clear and active. In so far as the fever process resembles starvation, we can follow it with some tangible facts. Flint says: "All parts of the organism are by no means equally affected by inanition. As an invariable rule, the fat disappears almost completely. The blood is diminished about three-quarters, and the digestive organs more than one-half. The muscular system is diminished nearly one-half. The weight of the nervous system is least affected."

The following table of Chossat gives the relative loss per 100:

Fat,	0.933
Blood,	0.750
Spleen,	0.714
Pancreas,	0.641
Liver,	0.520
Heart,	0.448
Intestines,	0.424
Muscles of locomotion,	0.423
Stomach,	0.397
Pharynx, œsophagus,	0.342
Skin,	0.333
Kidneys,	0.319
Respiratory apparatus,	0.222
Osseous system,	0.167
Eyes,	0.100
Nervous system,	0.019

From the above will be seen the very slight loss of the nervous system when compared with most of the other parts of the body. Our attention is directed to the ready manner in which many parts of the body are taken up in the circulation and consumed by the autophagous or self-eating individual. Were the nervous system to be preyed upon to a similar extent, the subject of inanition would perish long before the usual time, for the powers which preside over the phenomena of life would be undermined and destroyed.

Let us depart again and inquire into the destructive metamorphosis of the brain in health as compared with that of muscle. The only way of approximating the truth is by comparing the excretory products respectively of mental and muscular activity.

Prof. Hammond has made some elaborate researches pertaining to this subject, which show very plainly the changes in muscular tissue, and quite indefinitely those in nervous tissue. In active bodily exercise, with ordinary diet, the proportion of urea and other solid constituents in the excretions was very markedly increased; while, in increased mental exertion, the same thing took place with the exception of uric acid, which was diminished. "Byasson found that by mental exertion the quantity of urine was increased; the amount of urea was also increased, the phosphoric acid was increased about one third; the sulphuric acid was more than doubled; and the chlorine was nearly doubled." (Flint). There is no question that excrementitious matters appear in increased quantities after mental exertion, but it is not positively known that these matters come from the disassimilation of nervous tissue, since there is no principle among them, organic or inorganic, which is specially connected with the physiological wear of the brain. The general belief is, however, that this is their origin, and this is strengthened by the fact that mental labor alone is calculated to develop the faculties of the mind. If work is done in any part of the economy in health, it involves a certain amount of waste, which is repaired immediately; and this destruction and regeneration of tissue is the all profound process of nutrition. Every one is aware of the eternal changes in the economy coming under this head. It is this, indeed, which enables the learned propounder of the theory we are commenting on, to burn out some part of the old body, and supply their places with new ones. The order in which the different structures are affected has been given; and it remains only to show the extent of the loss before a fatal termination, which is put down by Chossat as $\frac{45}{100}$ of adults by weight.

Now let us turn back to the theory of burning out the disease of drunkenness with the so-called "fever-process." As the stronghold of the disease, and exciting cause lies in the brain, and this part is not burnt out like the rest, it seems impossible for the treatment to reach the case. It may be stated that were such a process to be instituted in the system, some of the bloated and degenerated structures might be consumed to the relief of the liver, intestines, heart, muscles, etc. But we find in cases where treatment is especially indicated—cases of periodical drunkenness—that the characteristic effects of alcohol are seldom or never produced.

To approach the subject more closely, there is no evidence in the reports of Dr. McElroy's cases of having really, instituted a fever process. The most constant and characteristic symptom of what we know as fever, is elevation of temperature, yet from the beginning to the end of the cases there is no record of it. I should rather infer, from the means employed, that there was a depression instead of elevation of temperature. In the first place the patient was laboring under the physiological effects of alcohol with a temperature probably below the normal. Then came the administration of calomel and ipecac, agents very far from being able to set up the fever-process. From the heroic doses in which they were given, I should take it that their effects were decidedly depressant. All that can be claimed from these agents in such a capacity, is that the secretory functions were enhanced by them, and the blood was depleted of certain impurities. I cannot see how metamorphosis of tissue could be either hastened or retarded by them, unless by interfering with the appetite, and so promoting inanition.

All that I have done so far is to speak of the effects and *modus operandi* of these remedies. I would like also to say a word about the results of the treatment.

If the cases which have undergone this treatment, shall remain permanently cured, we will be content with the results without inquiring into the *modus medendi*; but if the success should not be flattering, the profession should not be slow to abandon and discountenance this most sickening and disagreeable practice.

I shall not pursue this matter any farther, but will offer a few original thoughts on the management of drunkards Paroxysms of drunkenness were very justly compared, by a gentleman at the last meeting, to paroxysms of insanity, or suicidal melancholy. It might have been carried farther, and likened to kleptomania, or that strange feeling which fills the mind of the cold-blooded murderer. The law deals with instances of this kind, and why should it not take charge of drunkards? Let intoxication be made a criminal offence, without interfering with the freedom of people to drink, and the sufferers will soon find out that drunkenness is caused by drinking. Moderate and constant drinkers may evade the grasp of such a law, but their suffering is not less; for disease soon overtakes them with a scourge much worse than any law could impose upon them. But the poor, unfortunate drunkard should not be thrown unmercifully into prison to draw out a miserable existence. He should rather be confined in some institution resembling the St. Louis in Paris, where, by the proper management, work both bodily and mental might be instituted, in the hope of leading him out of the desert of his depraved existence. Institutions of this kind have been aimed at in this country, but never attained. Nor will they exist for some time to come; for much cannot be expected in the way of treatment, when our knowledge of the pathology of the disease is so limited. Something may be done, however, in the way of burning out the foundation of the disease, and this on purely physiological grounds—*i. e.* by protracted mental labor. The "fever-process," in all probability cannot be induced, but nutrition can be quickened, and destructive assimilation enhanced. Proper faculties may be developed in the brain, and improper ones can be curbed or driven into insignificance. But the method of treatment by exercise may be made the subject of a future discussion. Protoplasm is like putty in its hands. No drug is so powerful. Disease itself can scarcely vie with it; and heredity does little more than surpass it.

In conclusion, I wish to repeat that in speaking of the "fever-process," I only alluded to ordinary fever, such as could have occurred in the case reported, there being no wandering or delirium. I do not deny that there have been cases of typhoid fever, where the mental faculties have been impaired, or the mind completely overthrown. I wish also to state, that the explanation given by the doctor of the manner in which his treatment acts is not not in accordance with physiological facts and cannot be accepted as truth.

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Art. 3.—Regarding the Bombarding Treatment of Yellow Fever.—New and Brilliant Discovery.

Reported by T. TABBS, M. D., Galensville, O.

From Jacksonville, Florida, comes the news of a new *medical discovery*, that for brilliancy and originality has never been surpassed; a discovery that completely revolutionizes the practice of physic, and inflicts irretrievable injury on doctors, undertakers and sextons. The empirical knowledge derived from over two thousand years of careful medical observation, vanishes like mist before the rising sun, and medicine becomes a thing of the benighted past. Strange as it may seem, the cause of this tremendous revolution must be traced to a non-professional source. The history of the discovery may be briefly stated: Several years since, a rural philosopher, who devoted his time to the special pursuit of horticulture in the Everglades of Florida, near the beautiful city of Jacksonville, while busily engaged in studying the baneful effects of parasitic diseases on plants, and also the traumatic injuries inflicted by insects on his favorite exotics, discovered an antidote for the pests of the garden. The discovery was brought about in a strange manner. It seems in the delightful land of Florida, that owing to the moisture of the climate and the warmth of an ever tropical sun, the insects attain an enormous size. Mosquitoes, are said, to resemble in proportions the vampire bat, possessing a biting capacity in direct ratio to their fighting weight. The June bug, grows as large as a Maryland terrapin, and ignorant northern immigrants, having gastronomic tendencies, have been accused of using it in the manufacture of mock turtle soup. The caterpillar grows as large as the northern chimney swallow, and its resulting butterfly, has sometimes been taken for the crested jay hawk of the Rocky Mountains. For this reason it has been the custom of the Florida horticulturist, to kill off insects with a double barrelled shot-gun. Some time since, while engaged in the pleasant pastime of firing buckshot at these vermen. L. A. Hardee, proprietor of the "Honeymoon Nursery," discovered that the atmospheric concussion produced by the explosion of gun-powder caused the extermination or precipitate flight of all varieties of insects, animalcules and vegetable fungi. Most scientific investigators would have been satisfied with this single discovery, for future generations of florists and horticulturists must invariably rise up and bless the name of Hardee. It now becomes clearly apparent why the *philloxera* which so devastated the vine growing regions of France disappeared during the Franco-Prussian war; it was certainly owing to the lively bombardments occurring between the French and German artillery. The potato bug (*doraphora decem lineata.*) left its home in the far west, on account of the rifle practice between the lamented Captain Jack and the United States Army. Only last year, we saw the voracious grasshoppers swarming eastwards, leaving behind them a trail of desolation: The cause of their swarming is now apparent; Sitting Bull and the United States army, while bombarding each other, caused atmospheric concussion owing to a waste of gun powder. It is now also evident why the apisculturist bangs away on the classical gong and reverberating tin pan, and fires the ancient blunderbuss while chasing the swarming bee. We call Col. Hardee's attention to these new arguments in support of his statements; but we digress.

As before stated, the discovery that atmospheric concussion caused the destruction of the lower forms of animal life, would have been sufficient for any ordinary man, it was not so however, in the case of Hardee, for the gallant Colonel possessed more than the ordinary modicum of grey matter usually found in the cerebrum of the average native of Florida; his grand mind was diverted from the study of the diseases of plants, and he drifted naturally into the realms of medical metaphysics, becoming a firm believer in the germinal theory of disease. His reasoning led him to think that the principal applied to plants, might be applied to the human subject. As disease in plants, and in the human subject is caused by the development of germs and as gun powder killed the diseased germs of the former, it ought to kill the germs of the latter. It was no more than natural that Hardee should wish to verify his opinion. Beyond this, he saw by obliterating from the face of nature, the disease germs of animal and vegetable life, he could prevent the evolution of disease and make a paradise of earth. Florida would become a second garden of Eden, and there would be a corresponding rise in the price of Jacksonville corner lots. No cause existing, there could be no effect; no disease existing, there could be no death. Happy! happy—Utopia!

For several years the gallant Colonel sought to convert the physicians of Florida to his peculiar notions, but all in vain. The Florida medical practitioner was too wise to be thus ensnared, knowing full well if Hardee's tactics were once adopted, the profession of medicine would be lost to the world forever. So the gallant Colonel was ridiculed, sneered at, snubbed and abused by the disciples of Æsculapius, in the same way that the immortal Jenner was treated by the ever generous members of the fraternity. Luckily for Hardee, he was not a doctor; belonged to no County Medical Society, and had no dread of the Code of Ethics. So, being a wealthy man, he purchased a battery consisting of two twelve pounders, and then boldly offered to give a practical demonstration of his bombarding treatment; claiming his ability to drive all zymotic diseases out of Jacksonville in the space of three days.

It is at this point in our narrative that we pause a moment to regret the illiberality of the medical profession of Florida. Alarmed at the prospect of losing their only visible means of support, the Florida doctor's flew to arms and urged objection after objection, against "Hardee's Bombarding Treatment." Strange to say only two of their numerous objections were at all tenable; the first of these was, that the firing of cannon would alarm their patients; the second, was that the discharge of heavy artillery would smash all the window glass in Jacksonville. The latter objection was ably seconded by the citizens of the town, who, being economical, did not wish to have their china, mirrors, and window-panes shattered by atmospheric concussion, and therefore for the time being, Hardee was prohibited from firing his cannon.

Some months sped bye when suddenly, that terror of Southern towns, yellow fever made its appearance at Fernandina, and the natives of Florida commenced dropping from the tree of life, like ripe oranges after the first frost. Then it was that the gallant Colonel turned the tables on his medical adversaries, as the following few extracts published in the "Daily Sun and Press," of Jacksonville, Sept. 12, 1877, fully exhibits:

Dr. W. H. Pope, Chairman of the Board of Health of Fernandina, Florida:

From a long and most intimate acquaintance with you, and yielding to no one of your numerous friends in congratulating you on the high and eminent position which you occupy as a physician, I feel that it is not an unwarrantable liberty I take in addressing you relative to the yellow fever now in your city.

Permit me here to say that Jacksonville deeply sympathizes with her sister city in her great distress, and already has she put on the habiliments of mourning, and her children around the rich throne of grace are begging our Father "to stay the rod" and that mercy would again smile on Florida.

It has been truly said that yellow fever is the scourge of the South, though it has at various times visited New York, Philadelphia and Boston, slaying thousands! Yet, in no city of the United States has this dreadful disease reigned with more violence and terror than in New Orleans. The Rev. Theodore Clapp of that city, one of the most distinguished and brilliant of men says: "I have witnessed eleven yellow fever epidemic years in

New Orleans, carrying to a sudden grave never less than 3,000 human beings." This reverend philanthropist again says that "within a space of twenty years one-hundred thousand human beings have found a grave in New Orleans from yellow fever, and that fully twenty-five thousand of this number were between the ages of eighteen and twenty-five."

Now, my dear Doctor, what a fearful and melancholy picture of the ravages of this dread destroyer is to the young of our sunny home. With this picture and many others known to us, you will readily agree with me, in saying that any reasonable experiment should be made to destroy this awful scourge.

I very much regret to say that the medical profession, for the last three-hundred years, has made no successful advancement in the treatment of yellow fever. It is true that English surgeons in Her Majesty's armies in India, claim to have made some remarkable discoveries in the successful treatment of this disease; but their treatment failed to be recognized in France or this country. Some twenty years ago, Doctor Harvey L. Bird, of Savannah, and his friend Dr. G. Harris, claimed to have found a successful treatment of yellow fever, then an epidemic in Savannah; but their theory, after being tested by Doctors Arnold and Bullock, was not received. The only advancement in the knowledge of yellow fever in the last three hundred years, made and proven by our profession, is that yellow fever is not contagious.

Dr. Firth, of Philadelphia, proved beyond any doubt that this disease was not contagious, having swallowed and inocculated himself with the black vomit and the saliva of patients.

But the experiments made by Dr. John Hastings, a very distinguished surgeon of the United States navy, were not only exceedingly dangerous, but startling in their results. I here quote his own language: "I have cut myself with a scalpel, when handling black vomit and the other fluids and tissues of patients who died of yellow fever, and still suffered not the least inconvenience from this contact and exposure."

I merely mention the above two instances because suffering humanity demands that every one should know that yellow fever is not contagious, and that the sick of this fever should not be neglected for the want of nurses. It is claimed by the medical profession for two-hundred years, that yellow fever is caused by the exhalations or animalculæ from alluvial and marshy soils; said grounds being either subject to inundations from tides or heavy rains, and afterwards being exposed to the heat of the tropical sun, which produces a fungus growth of myriads of animalculæ, which, being inhaled into the stomach, produces all the varieties of billious and remittent fevers; and when the poison is virulent or malignant, yellow fever is the result. The above theory of yellow fever, I find is acknowledged, not only in England and the United States, but by the most scientific physicians of Germany and France. This theory is accepted, with few exceptions, by all the scientists of Europe.

I know, my dear friend, that you will condemn one so humble and unlearned as the writer, if he refuses to accept and acknowledge the above theory alone as the cause of yellow fever; but you will, certainly now extend that charity which you so often did in the Everglades of Florida during the last Seminole war, in acknowledging me as a close observer of facts. Now I do not wish to go into a lengthy discussion of the animalculæ theory, but will state a few facts which will compel you to acknowledge that this animalculæ theory is worthy of argument.

First. It is well-known that yellow fever has twice been epidemic at Cedar-Key and islands in the Gulf of Mexico of pure white sand, having no marsh whatever. Now for fear that you will say that animalculæ germinated in this sand, let us go to the Little Rock Island known as the Dry Tortugas, where yellow fever has several times raged with great violence, and the last time, under the kind treatment of Dr. Mudd, a very skillful physician, fully sixty per cent. of the garrison who took this disease fell.

Again, fearing that you will say that animalculæ were produced from this rock, let us go out into the Atlantic and see a ship which, for ballast has taken a cargo of rock salt, and see every one of the crew down with yellow fever, captain and both mates dead on deck. This fact was established ten months ago.

Where now, will you find animalculæ from alluvial and marshy soils? Yes, Doctor I must repudiate the theory of animalculæ originating in marshy or alluvial soil. I claim that they are caused by decaying wood producing spores or fungus growths being saturated with salt water, and afterwards exposed to a tropical sun. My dear friend, I do not propose to discuss this question with you—but to call your attention to facts. Having proven to the world upon scientific principle and by affidavits of some of our best citizens, that heavy concussion of the air, or the combustion of gun powder such as the firing of cannons, will and has destroyed all insect and parasite life coming in contact with said concussion when the atmosphere was humid and rare, or at night, when the dew was falling. With the facts staring us in the face that no yellow fever or contagion followed the Federal or Confederate armies, or what did, immediately disappeared after sharp and severe engagements. (See Gen McDowell's report of the ravages of small-pox in his communication before the first battle of Manassas. This disease was never again, to my knowledge, alluded to in any of the reports from officers or reporters during the remainder of the great struggle in Virginia). It is an established fact, that not only did the cannonading of both armies destroy contagious, but malarial and all remittent fevers disappeared. This fact becoming known to the surgeons, calomel and quinine were abolished in the Federal armies and nearly so in the Southern armies. The homœopathists in the armies became very popular on account of their successful treatment of camp diseases, and these gained such a strong position that it is now impossible to dislodge them. On my grounds, I accidentally discovered that heavy concussion of the air at night, by the combustion of gunpowder, is destructive to parasite life. I, several years ago, learning that yellow fever was in Charleston, proposed to the authorities of that city to use heavy concussion of the atmosphere to purify the same. My theory, then new, was received kindly by the authorities and physicians, and had yellow fever then proved an epidemic, my theory would then have been established, or, exploded. A few years after learning that yellow fever was declared an epidemic at Vicksburg, I wrote to the mayor of that city, and so did our acting mayor of Jacksonville, Mr. Ellis. Heavy concussion was then used, and the fever disappeared; but a great difference of opinion having arisen between the physicians of Vicksburg relative to the efficacy of concussion, it was not then made public.

Last year when the yellow fever was declared in Savannah, I immediately wrote to Mayor Anderson, of that city, begging him to permit and assist me in trying the experiment of concussion in destroying the fever. Our acting mayor, Mr. Jones, then of Jacksonville, wrote Mayor Anderson and so did an eminent physician of Atlanta. Both of these gentlemen urged the authorities to try Hardee's theory of concussion. Mayor Anderson laid before the Board of Health and physicians of Savannah our communications, and they were treated with contempt.

On closely observing experiments made on my own grounds in the destruction of scales and caterpillars by concussion of the air with a common shot-gun, I was tempted to believe that it is the sulphurous acid gas which generates from the combustion of gunpowder, and not actually the concussion which destroys parasitic life, but am well supported that it is the concussion alone which destroys fish, frogs, and tadpoles under water.

Again, I am supported in my concussion theory by Lord Bacon, who observed the effects of concussion on pestilent air, nearly three hundred years ago. In ancient times, before the press was known, it was customary to sound alarms when an epidemic was known to exist, by the severe ringing of all the bells at night, in dense and populous cities; and Lord Bacon then declared that the ringing of those bells dissipated pestilent air. [See Webster's Unabridged for the definition of Concussion].

Bringing the above facts before you, I now declare that in my humble opinion I can perfectly eradicate and destroy the existence of yellow fever now in your city, and that if two tons of blasting powder and necessary assistance be furnished, I will drive from your gates this scourge of the South; and that in fifteen days after concussion, all types of fever will leave your city, I have one of the prettiest homes in Florida, with Oriental gardens; I have a large and happy family, and the future full of rainbows, yet I am willing to leave all these and risk my life in your afflicted city for the purpose above mentioned; and could I but prove my theory a success and then fall, I would die contented, knowing that a charitable country would take care of those for whom I ought to live. But if in falling I prove my theory a humbug, then the Christians of our land would throw a mantle of charity over my weak yet imaginative brain.

L. A. HARDEE.

This open letter produced a decided effect on the citizens of Jacksonville, for from an editorial of the same issue we cull the following extract:

"Elsewhere will be found an argumentative communication by Colonel Hardee, addressed to Dr. W. H. Pope, of Fernandina, giving reasons why his theory of concussion should be now applied in Fernandina, for the purpose of destroying the yellow fever, now in that city. The theory of concussion has many advocates in this community, and it is understood that a petition is now in circulation for the purpose of procuring blasting powder for use, not only as a preventative in our city, but as a cure in Fernandina."

In the local columns of the Jacksonville newspaper of the same date we read:

CONCUSSION TO BE TRIED.

"Yesterday afternoon a petition was quite generally circulated in the city, asking funds for the purpose of buying powder and trying the effect of firing heavy guns to clear the atmosphere at Fernandina. It is understood also, that a portion of the funds so obtained, will be used here in concussing the air in the above manner on Friday night, and many, especially those who have served in the army, are of the opinion that it will be of assistance in keeping out the fever. It is probable that when council meets on Thursday evening, it will be asked to assist the project."

Even the advertising columns of the "Daily Sun and Press" give an inkling of the popular feeling, as the following extract shows:

"ATTENTION, FIRST FLORIDA ARTILLERY.

There will be a special meeting to-night at Metropolitan Hall. A full attendance particularly requested.

GEO. C. WILSON, Captain."

On the 16th of September the Mayor and Health Officer of Jacksonville, proclaimed yellow fever to be present in that city in epidemic form; what followed can be best explained in a private letter written by Col. Hardee to a prominent physician of Cincinnati. Although not authorized to make use of this letter we shall do so in order that the readers of the LANCET AND OBSERVER may read and judge for themselves:

HONEY-MOON, FLORIDA, Dec. 1st, 1877.

DR. ———, *Dear Sir:*—Yours of the 28th, at hand—I enclose you my communication to Dr. Pope, written the day yellow fever was declared to be epidemic at Fernandina. The Board of Health and City Council of that city would have given my theory a trial, but physicians sent to Fernandina from other cities, declared that the cannonading would kill all the sick, and they did not think it worth while to risk it. On the morning of the 16th, the chairman of the "Duval Medical Society," the City Physician, and the Mayor of Jacksonville proclaimed through the city papers that yellow fever existed in Jacksonville. I was requested to meet the City Council at 11 o'clock on the same day. I explained to the City Council the experiments on my farm in destroying insects and parasitic life by the principle of concussing the air when it was humid at night. The City Council unanimously voted me five hundred pounds of powder, and requested me to thoroughly concuss, that night, the southern portion of the city, which was the infected portion where malarial and congestive fevers had been raging during the latter part of the summer. I had also given me by the believers in concussion two-hundred pounds of powder. This latter powder, I used in bags containing twenty pounds placed in holes near the large pond situated nearly in the central portion of the malarial district. I also caused one of my own cannon (a twelve pounder) to be fired sixty-three times, with heavy charges of powders. The concussion this gun produced was sufficient to break glass and plaster walls all over the infected district. The next day Mr. Wilson, one of the Alderman of the city took a steamer and went to St. Augustine for some large cannon in the fort at that point. I awaited the arrival of these guns before again concussing the city. The steamer with the guns did not arrive until the morning of the 20th, by which time all the sick had recovered, and no new cases of fever of any description having been reported, the city authorities and physicians declared that no yellow fever existed in Jacksonville, and the City Council ordered me not to use any further concussion. So remarkable was the health of the place that many prominent persons began to believe that no yellow fever had been here. On the morning of the 29th inst., I received orders from the mayor of Jacksonville to use all available means and cause the concussion of the entire city. I live one mile from the city of Jacksonville on my farm, known as "Honey-moon," and on riding into Jacksonville, found that yellow fever was spreading all over town, seven deaths having occurred on the night of the 25th. At six o'clock on the night of the 26th, I again begun to concuss the city, my sons firing one-hundred and twenty-nine double discharges from one of my cannon (I have two cannon both 12 pounders). I do not know how much powder was used by Mr. Wilson's squads, but I presume about three pounds to each discharge. The city was concussed all over except that portion where the new Episcopal church stands, a portion which is very high and known as the healthiest part of Jacksonville. This district was in Mr. Wilson's portion of the city, and I do not know the reason it was not concussed, not having seen Mr. Wilson since. I learn from outside parties however, that it was feared the concussion would destroy the costly glases in that end of the-city, and the glasses of the churches in the immediate neighborhood. Yesterday morning there were three deaths in that portion of the city and some sick, but on yesterday morning we had the first frost of the season, and it was a severe frost, pieces of ice and the ground frozen hard, and there is no particular use of concussion. I have hastily written these facts, but they can all be verified by writing to men here. I refer you, for instance to our Mayor, Wm. Stokes Byrd. I should be pleased to hear from you in regard to concussion, and to make your acquaintance.

Yours respectfully,
L. A. HARDEE.

We give the gallant Colonel's letter *verbatum*, and hope to hear further in regard to the matter from some Florida physician. If Hardee's statements are true, and we have no reason to doubt his veracity, sanitary medicine will hereafter, be best served by non-professional experts. Boards of Health will be abolished and artillery companies substituted. When scarlet fever, measles, small-pox, diphtheria, or any of the zymotici make their appearance the "Germ Destroying Artillery" will be ordered out to concuss the atmosphere. Two important industries of the United States will be immensely benefited by the grand discovery, *i. e.*: the iron and glass trade. The demand for cannon and window panes will be enormous. We have no doubt but that in the course of time some ingenious electrical investigator, will be able to patent a balloon electrode, and manufacture thunder to order. This great discovery of Hardee solves two important problems that have vexed the medical mind for years past--*i. e*: 1st, that disease is really the result of germ poisoning: 2nd, that the reason of a diminished mortality from fevers in the United States during the mid-summer months, is owing to the general atmospheric concussion produced by the 4th of July.

Only one sad reflection hovers like a summer cloud over Col. Hardee's brilliant discovery: the physician becomes a thing of the past. It is barely possible, that that the world, still entertaining some veneration for ancient relics, may pension off a few college professors; in case this is done, the professors should be arrayed in the gorgeous uniforms of drum majors and allowed to touch off the cannon on all occasions, their natural love for making a noise will, in this manner, be gratified. *Sic transit gloria mundi.*

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Art. 4.—Transcendental Medicine. An Enquiry Concerning the Manner of Morbific and Remedial Agents Independently of Empiricism.

By T. L. WRIGHT, M. D. Bellefontaine, O.

SECTION V.

An inquiry respecting the mode by which, in general, remedies act upon diseases.

If there is in general, a well defined objective point, to which medication should be directed in the treatment of disease, it will be a matter of supreme importance, to ascertain what it is, what are the conditions of its existence, and what the laws of its activity. This is one of the oldest and most intricate of medical subjects. The varied elements that, taken together, operate in producing the phenomena of human existence, the variety and complexity of such phenomena both in health and disease, combine to present such a mass of contradictions, that the most diverse and antagonistic opinions prevail on the point in issue. It will not be expected that new light will be thrown on the subject. Indeed, the leading idea now is, to utilize, and analyze, and group, scattered ideas and facts, and as much as possible, bring them in masses, to illustrate and advance some portions of medical science.

It will not be pretended that a certain inexorable rule, can be applied to all cases of remedial interference with diseased actions. And especially, in the present discussion, a strenuous endeavor will be made to avoid the temperature, that always obtrudes itself when a difficult subject is under consideration,—the temptation to say too much.

There are doubtless various ways in which medicines can be properly applied to diseased states. But if there is a general rule on that subject, which can be satisfactorily determined, then all other methods of application, must be regarded as exceptions. And if it will further appear that many exceptions, when divested of unnecessary concomitants, are not far removed from the rule itself, the subject becomes very much simplified. To recognize an acknowledged objective point, in the application of remedies to disease, will remove much of the mist and smoke which obscures the mind in contemplating the heterogenious mass of remedies, presumed to operate through many different channels, and in great complexity of manner, in curing diseases. Such knowledge will simplify the character of the reasoning, through which particular remedies are concluded to be the most appropriate ones, in the treatment of certain ascertained morbid conditions. It will in fact greatly aid the mind in many instances, to cast off mere ideal associations between diseases and their remedies, and make a direct, uncomplicated and untrammeled attack upon the pathological state, in its very citadel, by the shortest possible process of medication.

A determination of the question, how to remove a disease, will be best attained by observing how it was originated, and how it is sustained. In other words, it is necessary to have some idea of the nature of the relations, that exist between the action of the remedy proposed, and that of the morbific agent supposed to have occasioned the malady. The question now arises, in what method, or through what channels do morbific agents generally act? If that point can be plausibly ascertained, there will be little difficulty in determining the mode in which remedies also act.

Most frequently, the opinion is held, that in treating disease, the most important preliminary point is to find out the intimate nature or character of the agent causing the morbid activity. The truth is probably, that it is of at least equal importance, to determine the nature of the impression that the morbific agent makes upon the brain; for it is by no means clear, that morbific agents, possessing widely different sensible properties, may not sometimes impress the brain in a manner very similar to each other, and set in certain trains of diseased changes, very analagous to each other; and the converse is very likely also true, that causes apparently closely allied, may produce diseases of widely differing symptoms and tendencies. The idea, that to treat a disease rationally, a correct knowledge of its exact cause is necessary, is by no means a fact of universal application. The reason of course, is not from any failure in the laws of cause and effect; but it lies in the fact, hereafter to be more fully noticed, that the brain is so sensitive to impressions and the character of the impressions that it is capable of receiving, are of such different characters, that any known sensible qualities possessed by a morbific agent cannot foreshadow infallibly its influence upon the state of the brain.

Before proceeding directly with the discussion of the question under consideration, it will conduce probably to an easy presentation of the case, to briefly state some generally received facts, that will illustrate partially the principles to be laid down, as the inquiry proceeds.

Nothing is better established than that imagination may cause disease actually to be set up. The same principle or agency, is every day seen removing the symptoms of disease. Identical remedies in the hands of one person, will have a different effect on a patient, from what they will in the hands of another person. Superstitious rites, charms, imprecations against evil spirits, music, and a host of such mummery have beyond all question cured diseases. The faithful application of inert substances to the removal of disease has often restored the sick to health. These are all illustrations of the power of belief,—of faith.* The imagination strongly excited, must without fail, make a strong impression on the brain, and there cannot, by any possibility, be a strong impression made upon the brain without a correspondingly strong susceptibility being imparted to the whole organization; a susceptibility, which very often must overcome the continuation of preexisting forces, and set up a new series of vital actions. Such, are examples of faith, — certainly a most powerful principle in human activity, as it operates in conjunction with sensation. There will be reason to believe that morbific impressions upon the brain may be made, and produce active results, without sensation being aroused, or the mind in the slightest degree affected.

There is no dispute that ordinary mental phenomena have their origin, in certain impressions or states of the brain, induced by contact in some way with the external world. The brain is brought into actual touch, with external matter, through the senses. The brain also presides over the nutrition and waste of the physical body at large. When it is diverted from this office in some degree, as by study, or mental anxiety, the body suffers. This function of the brain, differs from its duties as the minister of the mind in this, — that it is performed without a necessary employment of the senses of relation; those senses that excite thought and the reasoning faculty. But it is impossible for the brain to perform any function, without some impression or incitement awakening it to activity. If the brain presides over the growth and decay of the body; over its well being in health and disease, without arousing the vigilence of the sense of relation, which are accompanied by mental activity, then it is certain, that the brain may be incited, and compelled to activity of function, by causes of which the mind is unconscious; causes that operate without the knowledge of the perceptive faculties, and beyond the control of the will. There is no reason to doubt, either that the laws which govern the conduct of the brain, thus aroused to a state of activity, are perfectly analagous to those which preside over mental phenomena, under ordinary circumstances.

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* The prayer test of Prof. Tyndal would undoubtedly prove victorious over non-interference.

It is true that the ganglionic, or sympathetic, or organic system of nerves, very greatly, directly or indirectly, control the intimate organic processes both in health and disease. But this system of nerves is, after all, one of the instruments of the brain itself. It is an appendage of the brain, and is strictly subservient to it and the spinal cord; and from them it derives all its powers. On this point, Muller says: "The brain and spinal cord are to be regarded as the source of the power of the sympathetic (system) itself, which would without them become exhausted." And again: "The brain and spinal cord are the main source whence the power of organic nerves is gradually renovated."

Many diseases apparently originating directly in a lesion of the ganglionic system arise thus, only because that system is withdrawn from brain influence; or possibly is subjected to unnatural and injurious brain influence; as when the brain is exposed to poisonous impressions. Hence in those cases where a disease seems to spring from a fault of the sympathetic system, the real objective point to be reached in order to relieve the patient, is most commonly the brain, and its continuation, the spinal cord. Take for example, the disease known as scarlatina. This is a blood disease, if there is such a thing. It is a disease as far removed from the influence of brain impression, in its inception, as any that can be imagined. Its course and consequences, favor the idea that it is a process of evolution or elimination, occurring to the human being after birth, as many transformations, more or less perceptible, do occur to the human embryo. In the ordinary processes of evolution in the embryo, the strictly vegetative kind of life—the conservative connection with the mother with the fœtus, obviates any complications associated with a disturbed nervous system. But in the state of independent existence, the occurrence of a true constitutional disease, call it a process of evolution or not, becomes a matter of the most serious moment.

In the control and conduct of such a tremendous constitutional revolution, as scarlatina, the brain may become completely absorbed. By reason of the weakening or withdrawal of the brain power from the universal system, a withdrawal of that power which, in ordinary health, holds a contemperaneous conservatism over the system at large,—a number of secondary morbid phenomena may be engrafted upon the central disease. These secondary symptoms assume different phases in accordance with certain local causes. Sometimes there is a tendency to irregular determinations of the circulation, proving often suddenly fatal; sometimes suppression of urine, and dropsy supervenes; sometimes, there are suppurations; and again putrescency, or a well-marked septic condition takes place. Now this disease, in its purity, is a constitutional process. It is incapable of being changed, modified, or shortened by any artificial means whatever. It would be just as sensible to attempt to diminish the number of the hours of the day. Yet scarlatina is a disease, when its complications appear, that requires a wide range of treatment; a range of treatment that must correspond with the variety and kind of its concomitant association. This is an example of an apparent departure from the rule of making the brain an objective point in treating diseases. Still the fact remains, that an absence, or defect of brain power, is at the root of the symptoms of greatest danger; and after the superimposed troubles are cared for, the most satisfactory treatment, would be that, which is but calculated to preserve, and increase the brain force. Such instances of disease as this, are exceptions to the general rules.

Rheumatism is a disease, affecting the constitution of the blood. This blood, is then, probably, the cause of the symptoms of inflammation and pain, which identify rheumatism. There are two kinds of treatment for this disease in vogue. The expectant treatment, with salines, and acids, opiates, bleeding and blistering; which, coquetting with the circulating medium, mollifies its acridity, diminishes constantly the accumulation of morbific matter within it, till the changes, wrought by time and "nature," remove the central cause of the constantly operating series of morbid actions. The other treatment, is specific, and generally more satisfactory. It consists of making the brain and spinal cord the objective point. The morbid impression, the rheumatic state of the brain, under whose influence the mischief is inaugurated and sustained, is met by a counter, an antagonistic, or an obliterative impression, induced by colchicum, or salacin, or salycilic acid. This latter, is the rational treatment, and its success is a real sermon.

Diabetes Mellitus, is another instance of disease originating in the state of the brain. Treatment and diet will mitigate the symptoms. But if a cure is affected, it must be by direct impression upon the brain, either by the forces of nature, or by some specific power in the hands of man.

These are blood diseases, and are generally attended with the vitalization of the germs of certain microscopic animalculæ. It has been suggested that this is the cause of many diseases. It is most likely a consequence of the progress of disease, furnishing the conditions of life to these beings, which a state of health forbids. The idea that Bacteria are the cause of scarlatina, a disease which, when it runs a full and complete course, cannot probably, ever, affect the human system but once, is inadmissible.

States of the brain then, not only determine thought and reason, but they determine the continuance and grade of health. States of the brain also, caused by unhealthy impressions, it matters not in what way, directly or indirectly they may be induced, decide the kinds, the violence, and in conjunction with constitutional affinities, the complications of disease. And it follows as a rule if principles are there, that conditions of the brain antagonistic to, or rather incongenial with these morbific states, are those, upon which a cure is to be predicated. It is the office of rational therapeutics to inquire what remedies will produce these latter brain conditions, and establish the laws and possibilities of their production.

But this is not all. It must be remembered that what has been said applies to the general rule, the average, not to exceptional cases. Reason will be seen to widen the field of application with reference to these principles.

Conditions of the brain producing mental phenomena, are usually, very nearly precedent, to the exhibition of such phenomena. But they sometimes may not call into display, the condition of active mental phenomena, for a very long time indeed. It is said truly: "There seems to be a regular process carried on in the mind throughout its whole existence, by which ideas of memory are converted into ideas of conception. If a poet writes two or three-hundred verses, very many of the combinations of words, perhaps whole verses, will be faithful copies of what he has once remembered, and which, divested of all the marks of their origin, have reappeared to the writer as productions of his own brain."*

It is a well established fact in mental life, that things once forgotten, things perhaps only partly learned, may upon the supervention of certain states of the brain not voluntary mental activity, but conditions connected with diseased action,—be vividly recalled; and the mind thus impelled to action, will itself, wonder at the phenomenon. Moreover, it is a well recognized principle that any mere sensation whatever, even though unconsciously received, may, in certain states of the brain subsequently induced, become clearly perceived, and remembered, and the whole subject in association, become revealed, like a figure in a photographic negative. The well-known and conclusive instance of a person in fever pronouncing correctly, a quantity of Hebrew and Chaldaic words, when the person was in health, totally unable to pronounce a word in either language, is a case in point. Some time previously, this person, a servant, had heard a clergyman repeating these to her, senselesss sounds when preparing a sermon. Such facts indeed are personally known, in a greater or less degree, to nearly every observant individual.

Now from these several suggestions and remarks, certain conclusions are derived, which are plain and perfectly reasonable. It is probable, if it is not absolutely certain, that particular conditions of the brain, induced by morbific impressions, may in some instances remain in a latent state,—may lie dormant and inactive, for an indefinite period of time. This may possibly be so, though more urgent brain affections having for awhile the ascendency. Such states, thus induced, or caused, may become operative in some remote period of time, and produce the active phenomena of disease. This is not of course commonly the case.

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* REV. SYDNEY SMITH.

Nor are those exhibitions of mental activity, which are derived from long past and obscure sensations so frequent as to be, by any means the rule; although they are incontestable. Still those mental phenomena associated with memory having been awakened from long slumber, are sufficiently frequent in well attested cases, to raise a presumption that they are, in reality more common than is usually supposed.

So also, and operating through the brain and spinal cord, in a manner exactly analogous to common sensation—it must be esteemed possible, that morbid impressions may be made upon the brain, of a kind and manner, unconnected entirely with sensation, or mental knowledge; impressions too, which are capable of remaining in abeyance, of remaining latent and inactive for an indefinite period of time; and which also, are capable, at last, upon the withdrawal of the conservative brain power, as in weakness or fatigue; or on the supervention of any favorable circumstances; of culminating in the production of active disease, at some time in the distant future. There is no reason to believe, that there are any essential differences, in the laws which guide the actions of the brain in regard to mental manifestations, and those which direct its impulses, as they are manifested in the presentation of the physical organization in health and disease.

As illustrating some of the foregoing principles, the disease hydrophobia may be considered. The active cause of this disease in man is well known. It is the bite of an animal affected with rabies. The essential agent in its production, is an animal poison, or virus present in the saliva.

But this virus acts totally unlike inoculation by any other contagious poison in the fact, that it is infrequently a long time, even years, in displaying its effects upon man. The explanation of this, that supposes the contagious matter, by reason of the peculiar character of the wound, is prevented, mechanically, from at once entering the circulation, is so at variance with other known facts, concerning inoculation, that it can hardly be sustained.

There seems to be but little affinity between the constitution of man, and this disease. It is extremely doubtful if it ever originated in the human being, in its true contagious nature. It is certain that the human system comes under its sway with reluctance. It seems to submit to dominion of other impressions, and other powers, greatly by preference.

It does not therefore appear incredible, that the hydrophobic symptoms may be postponed for years; the hydrophobic impression remaining latent, dormant, if the state of the brain induced by the morbid agent, is overmatched by other states of the brain; or of any other physiological circumstances, that may hold dominion over the physical organization at the time of injury.

But the question arises, what has become of the virus which is the cause of the hydrophobic symptoms? There can scarcely be a doubt, that oftentimes it has been completely eliminated.

To account for the supervention of hydrophobia under circumstances of prolonged delay, recourse may be had to the operations in the brain analogous to memory; not of ideas and recollections of past facts, and sensations, exciting thought; but the recurrence, under circumstances favorable to such recurrence, of that imperceptible organic impression, made upon the brain by the poison of rabies, perhaps years before.

Morbid impressions, of course are not always, perhaps not usually unaccompanied by the phenomena of real sensation. But they do not of necessity accompany them. It is hardly probable that the sensation of damp cold, which is felt when one steps barefooted upon a damp pavement, is the morbid impression which develops rheumatism. Like the insensible rays which accompany light, rays of heat and chemical power; like the vibrations of air, too slow or too rapid to be audible, yet real; these morbific impressions may most likely be sometimes associated with true sensations, and yet, not be of them.

The old, unperceived, organic impressions imparted by the poison of rabies to the brain, come back then, suddenly, unheralded, deadly in their consequences. The poison of rabies as already remarked, does not seem congenial to the human constitution. Other impressions may control the organization, for a long time by preference; but when, by some concurrence of events, the old impression comes to the surface, and the brain is no longer absorbed with more benign and healthful associations, the disease assumes control, and hurling all other powers aside, it destroys its victim.

Still the question arises; if the virus once affecting the brain is eliminated, how can the confessedly contagious disease, become at last established? It will be remembered, that the presumption is that the original morbid impression on the brain, caused by the animal virus once in the circulation, but which impression has been latent for a long time, has at length become actively efficient. Now states of the brain affect the condition of the blood in other instances; in rheumatism and diabetes mellitis for example. There is nothing incredible in the idea, that the now acting morbid impression, caused in the first place by the virus of rabies, may affect the condition of the blood also; and that under its influence, a virus identical in kind with that which first caused the morbid state of the brain, may be produced. All the laws of brain activity which here passed in review, gives the air of plausibility to this idea, and the actual phenomena of nature in the disease in question, render the supposition very reasonable.

When the hydrophobic symptoms begin, or rather before they become generally established, the seat of the original wound is sometimes affected with tingling, or it may show signs of inflammation, or it may become an open sore. That the long delayed activity of the original brain impression that was caused by the bite, and by the entrance of the virus into the circulation, should excite anew, the nervous connection or sympathy, once established between the seat of the wound and the brain, is certainly not strange. That from this local sensation, inflammation, should recur under such circumstances, is proof positive of its original and primary activity, in producing a latent morbid state of the brain. The concurrence of the brain state thus described, and the opening wound, at once shows that the original hydrophobic chain of action, has assumed its force. There is no more reason to wonder at the reproduction in the system, of hydrophobic virus, under the influence of hydrophobic impressions on the brain, than there is to doubt the production of specific states of the blood, under the impression of rheumatic states of the brain. The organic memory of impressions being established in hydrophobia, the system proceeds to evolve the virus of rabies, just as it does the specific matter in the blood in rheumatism; and just as it continues to do, *de novo*, from day to day, and from week to week, as long as the rheumatic brain impression is in the ascendency.

It follows that no immunity from the consequences of a real, undoubted inoculation with the virus of rabies, can ever be established with certainty. No one has lived so long after an inoculation as to be safe. The moment may come, when, after the longest immunity that would seem to be desirable, the circumstances favorable to the production of the active symptoms of hydrophobia may arise. The old sensation, aparently eradicated from the brain, may come back unbidden, unwelcome, producing changes that develop hydrophobic poison.

It is obvious that the process of elimination is worthless in such diseases as hydrophobia. No hope of relief can possibly be entertained except by direct impression on the brain. And even that means affords no reasonable prospect of relief in the present state of medical knowledge. If the possibility existed that a condition of the brain inconsistent with the hydrophobic impression, could be established, still when it is remembered, with what reluctance the system seems to respond to the morbid impressions of that disease, the inference is plausible, that any adequate therapeutical impression would partake of similar uncertainty and delay.

If the principle discussed, bearing upon the objective point to which remedial agents should be directed, in the treatment of a vast majority of diseased states, is made clear to the understanding, the whole object of that part of the discussion of the Transcendental Medicine is accomplished. The innumerable exceptions, reasonable and fallacious which might be taken to be the principle advanced, are fully realized. So also are the innumerable explanations, equally rational or otherwise, that might be offered to the exceptions. If it is established that there is a general rule governing the rational application of remedies to diseases, and that such general rule is herein correctly defined, there will be established a certain additional degree of simplicity and precision in the application of therapeutics in the practice of medicine.

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Art. 5.—A Case of Invagination of the Large Bowel. Death in One Hundred Days.

Reported to the Union District Medical Saciety,

By J. W. RUTLEDGE, M. D., Cambridge City, Ind.

Alice J.; æt. 21 mos.; a well developed, well nourished, and intelligent child; always healthy until the evening of April 26th, 1877. She was attacked with what her parents supposed to be a severe spell of colic, lasting most of the night. Small doses of calomel and rhubarb were prescribed the next day, as there was slight costiveness, and the child was not entirely free from pain.

I was called May 3rd, seven days after the commencement of the attack. The patient was easy when in the horizontal position, but would put her hands on her abdomen and cry out when walking about the floor; bowels regular; appetite poor, except when she nursed from her mother, and no fever.

I was called again May 10th. The patient had had another attack the previous evening, lasting nearly all night despite the free administration of opiates; was rather drowsy in the morning, but free from pain. At this time a sausage-shaped tumor could be felt extending from the left hypochondriac region of the abdomen. It was freely movable in all directions, but not at all tender when freely manipulated. A lumbricoid was passed about this time, after the administration of some santonine. The stools were in a solid form and some corn passed whole which had been eaten a few hours previously. A day or two afterward one or two bloody stools were passed, otherwise was feeling tolerably well.

The patient was tolerably well from this to July 31st, except on the Monday evening of every second week, she would have an attack of intense pain which would last most of the night, and would only be quieted after the administration of five or six ten-drop doses of the solution of bimeconate of morphia. She would be quite drowsy for a day or two, and then would be comparatively well, playing on the floor with the other children until the end of the second week. Quinine administered before the attack had no effect on the pain.

The patient was taken at this latter date with severe vomiting and diarrhœa; an occasional bloody stool was passed mixed with mucous. The vomiting soon ceased but the diarrhœa continued until death. The tumor now felt low down in the left iliac region, extending in a cresent shape towards the umbilicus, and ended just above it. The suffering was intense and only quieted by $\frac{1}{8}$ gr. doses of morphia given every three or four hours. Death took place from exhaustion August 4th, one hundred days from the commencement of the attack.

Autopsy sixteen hours after death. The large intestine formed a convoluted tumor extending from the rectum, arching upwards and ending just above the umbilicus. The small intestines were quite empty and somewhat congested. Nine inches of the ileum. the caput coli and the ascending colon, had passed into the transverse and descending colon, the head of the colon being within two inches of the anus. The transverse colon had passed over the descending colon, forming an arch-shaped tumor six inches in its shortest diameter, nine and one half inches in its shortest curve and ten inches in its longest. The mass when stretched out was forty-seven inches in length. The whole of the ascending colon was very much thickened, the walls of the cæcum being fully three-fourths of an inch. The ileum lay alongside of the ascending colon firmly glued fast to it.

This was undoubtedly a case of double invagination beginning at the caput coli. Smith, in his "Diseases of Children," 2nd edition, gives an account of six cases of this variety. Two died on the third day, one on the seventh and of three the time is not stated. He also states that double invagination is very rare. The first invagination becomes arrested, forming a mass of very great thickness, and is necessarily fatal. He gives as causes: previous ill health, lumbricoids and rough handling. The parents stated that the father was in the habit of pitching the child up and catching it in his hands.

The symptoms present in such cases as detailed by Smith, were entirely wanting, such as obstinate constipation, tenderness over the bowels at any time, bloody stools, great tenesmus, obstinate vomiting, etc., until the last two or three days before death. The most positive sign was the sausage-shaped tumor felt in the left hypochondrium, as spoken of by Leichstern in vol. 7 of "Zeimsens Cyclopædia." No attempt at reduction was made as a positive diagnosis was not made out during life, the autopsy making all clear.

The case is unparalleled in symptoms as far as I can find any account in medical literature, although some cases are reported as living longer. All gave more positive signs of the disease.

Art. 6.—A Case of Poisoning by Atropia Sulphate.

Reported to the Cincinnati Medical Society, by
J. C. MACKENZIE, M. D.,
Professor of Physiology, Miami Medical College, and Physician to the Cincinnati Hospital.

On the 11th of December, I was called to see A. C. H., a medical student, aged twenty-six. I arrived at one o'clock in the afternoon and received the following account:

Suffering with neuralgia of the face, he went to his medicine case and took, as he thought, two or three grains of cinchonidia sulphate. This occurred at half past seven in the morning. He went to the College, and from there to his restaurant, where he arrived a little after twelve, and called for his dinner. Soon after he complained of dryness of the throat and confusion of the vision, and a fellow student who was sitting at the same table, noticed that his pupils were largely dilated. He at once took him to his room. On the way he was slightly delirious and staggered as if under the influence of alcohol. He was, however, sufficiently rational to go to his medicine chest and there found, what had before been suspected, that he had taken sulphate of atropia instead of cinchonidia. About half past twelve some of his fellow students administered an emetic of sulphate of zinc, which had caused him to vomit two or three times before my arrival and once afterwards. The vomited matter consisted of what he had eaten. Dr. Hough has examined it and reports to me that in two ounces of the same he found mere traces of atropia.

At one o'clock when I first saw him his condition was as follows: He seemed drowsy and stupid, but he recognized me and asked me in a sort of maudlin manner what was the minimum dose, meaning the minimum lethal dose. He seemed to have hallucinations, for frequently he would put out his hands and attempt to grasp some imaginary object; his pupils were dilated and immovable, but by no means as widely dilated as I have frequently seen them from the instillation of a weak solution of atropia; his pulse was 140, full and strong; respirations 20, and not in any respect abnormal; although stupid and drowsy he could be easily aroused, and although his answers to questions were given in an indistinct tone they were quite rational, and some remarks that he made indicated that he appreciated the danger of his condition; there was no flush of the surface. I administered hypodermically one-fourth of a grain of morphia sulphate, and had him swallow large quantities of warm water in order, if possible, to thoroughly wash out his stomach. He vomited afterwards but not to any very great extent. A second hypodermic injection, similar to the first, was given in fifteen minutes after it. Soon he threw himself back on the bed and fell into a sleep from which, however, he was aroused without much trouble. The tendency to coma steadily increased, so that it required pretty energetic shaking and flagellation to keep him awake. He was then made to walk about the room, being supported on each side, and cold water freely applied to his body. This for a while had the desired effect, but about three o'clock it failed to arouse him and the stupor seemed to become more profound, so that it was almost impossible to make him move along. Dr. W. H. Taylor, who saw the case with me almost from the beginning, suggested the application of hot water, and this was carried out with the most satisfactory results; for a while every time the hot water was applied it caused a very powerful reflex movement not only of the muscles of respiration but of other parts, it was continued alternately with ice until six o'clock. The temperature of the water must have been close upon 130°, and it had a more potent influence in causing reflex movements than the ice.

At three o'clock his pulse was 120, full, but not so forcible as before; respirations about 24. From three until half past five the coma steadily increased, and at the latter hour the prospects seemed almost perfectly hopeless; his head hung upon his shoulders in a perfectly limp state; there was complete unconsciousness from which he could not be aroused; for about half a minute his respiration ceased and artificial respiration was resorted to,and even after its reestablishment it could only be maintained by the means before mentioned, at eight in a minute; pulse 120, less force.

All this time, from two until six, he was moved about the room supported by fresh relays of his fellow students, without whose willing and untiring assistance, the case in my opinion would have terminated fatally. From half past five until six his breathing somewhat improved, but his unconsciousness remained as profound as before, and there was complete resolution of his body. At that hour he was placed in a chair and the faradaic current applied by means of the dry metallic electrodes extensively over the skin. The effect was very marked; he stood up, stamped his feet as if in pain, breathed quickly, but exhibited no other sign of consciousness. He was then placed in bed and the faradization occasionally employed. At seven o'clock he was breathing naturally and was conscious, though mildly delirious. From this time he steadily improved; he slept part of the night; during his wakeful periods being slightly delirious. His temperature during the night was taken and was 100.5°. Nothing was given to him in the way of treatment, but he was carefully watched.

The next morning when I saw him at ten o'clock, he was quite rational, and said that he felt well, except that his sight was imperfect from the dilatation of his pupils. He went out for a walk that afternoon, but the dilatation of his pupils continued for about a week. His urine was drawn off about two o'clock. A curious circumstance occurred about three: I went into the room in which he was being walked about from an adjoining room where I had been sitting. As I entered the door he stood up between his supporters, extended his hand and said, "I am better, Professor." He had been quite unconscious before, and almost immediately afterwards lapsed again into unconsciousness.

The morphia which I injected had no perceptible effect, nor did I expect that it would. If there be any antidotal effect in these two agents towards each other, (a view which I do not regard as by any means proven to be correct), the one must be given very shortly after the other. Now in this case an hour and a half had elapsed. It may be said that I did not give enough morphia, but I was afraid to administer more for fear of intensifying the coma which I saw impending. In a discussion in the "Société de Therapeutique" one of the speakers related a case of atropia poisoning, in which he had given no less than ten grs. acetate of morphia with good effect, but I am inclined to think that few physicians would be willing to resort to such heroic medication.

The amount of atropia taken by my patient must have been about two grains. He indicated to me upon the phial in which it had been contained, the quantity which he had taken. I had an apothecary fill into it an equal amount and it weighed just two grains.

I regret very much not having tried in this case the calabar bean, which in its physiological aspects at any rate is so antagonistic to atropia, but it would have been hardly a fair test as the atropia had been taken so long before I saw the patient. I have not been able to find any cases reported in which it has been used.

The minimum dose necessary to produce a fatal result is very difficult to arrive at. Numerous cases of atropine poisoning are reported, but most of them recovered after taking comparatively small quantities, and in many of them the quantity is not stated. It would depend very much upon circumstances, such as age, children being propotionately less affected than adults; condition of the stomach as regards food; early or late period at which remedial measures are instituted, etc. The smallest dose that I have seen mentioned as producing a fatal result, is referred to by M. Blondean in a discussion in the "Société de Therapeutique." The case occurred under his own observation and succumbed to nine milligrammes, equal to about one-seventh of a grain. No particulars are given.—*Bulletin Generale de Therapeutic.*

Taylor, in the second edition of his "Medical Jurisprudence," mentions the case of a young man who took at bedtime gr. ij. atropia sulphate; was heard to snore during the night, and was found dead the next morning.

A case is reported by Dr. S. W. Gross, in the *American Journal of the Medical Sciences*, October 1869, in which a woman, aged forty-three, took gr. iij. atropia. She became delirious; was seen by the physician in two hours when she was comatose; emetics were given without effect; acetate of morphia injected subcutaneously in quantities of half a grain every three hours, three and a half hours and four hours after she had taken it; flaggellations, artificial respiration and faradization were resorted to without success, and she died fifteen hours after the poison had been swallowed.

In the *Boston Medical and Surgical Journal*, 1868, is reported the case of a child aged three years, who took one and a half grains of atropia; seen by the physician two hours afterwards. The child did not vomit, and emetics were not given. Opium was prescribed but the child died in ten hours after the fatal dose.

The *London Lancet*, July 16, 1870, contains the report of a case of a woman aged sixty-six, who had taken a teaspoonful of belladonna liniment (Brit. Phar.), probably equivalent to one grain of atropia. An emetic was administered half an hour afterwards but produced no effect. Three hours after she was taken to the Bristol Infirmary and was under the care of Dr. Beddoe. She was then delirious but perfectlyconscious; she received hypodermically one-third of a grain of morphia, which was repeated several times in smaller quantities, and she took laudanum by the mouth. She became, seven hours after the poisoning profoundly comatose. Artificial respiration, stimulant enemata and electricity to the muscles of respiration, were resorted to but she died sixteen hours after the fatal dose. She had injected subcutaneously eleven-twelfths of a grain of acetate of morphia and took by mouth forty drops of laudanum.

The three following cases are from the same journal and illustrate the fact that recovery takes place when very large quantities of atropia or belladonna preparations have been taken:

A child four years old took half a grain of atropia. An hour or two afterwards the gait was uncertain and hallucinations were present. Five hours after the poisoning the child was placed in the Charring Cross Hospital under Dr. Chambers. It had vomited on the way, not before, so far as stated in the report. Received wine of ipecac and vomited freely; was put in warm bath; soon after fell asleep and awoke none the worse.—*Lancet*, January 2, 1864.

A boy aged ten years took a teaspoonful of the extract of belladonna, (equal probably to four grains of atropine). He became delirious and continued so thirty or forty hours; then fell asleep and awoke without delirium, and convalesced satisfactorily. The treatment consisted in blisters to the neck, sinapisms to the feet and leeches to the temple. There is no account of his ever having vomited.—*Lancet*, December 3, 1859.

A child aged four years, swallowed half an ounce of belladonna liniment (Brit. Phar.), (equal probably to about four grains of atropia); had unsteadiness of gait and delirium; then became drowsy and fell asleep; woke in three and a half hours in a condition of delirium; this continued for twenty-three hours, after which he again fell asleep and awoke in five hours quite well. The treatment was the injection subcutaneously of pilocarpine in one-fifth of a grain doses until one grain had been used The treatment was begun twenty-five minutes after the poisoning, but seemed to have no favorable influence.—*Lancet*, March 1, 1876.

In "Taylor's Medical Jurisprudence," second edition, is mentioned the case of a woman who took three drachms of the extract of belladonna, (probably equal to about eight grains of atropia), and recovered after five weeks illness. Emetics were administered in this case, how soon after the ingestion of the poison is not stated.

From the case which I have reported, and those abstracted from various sources, I think the conclusion may be drawn that two grains of atropia sulphate is an exceedingly dangerous dose; that less than that has proved fatal in more than one instance, but that much larger quantities, or at least the equivalent of much larger quantities in the form of the preparations of belladonna, have been taken and recovered from. The preparations of belladonna are not by any means very definite in their strength, and consequently it is rather difficult to estimate the amount of atropia to which they are equal, but I do not think that I have placed it too high.

I should have stated that besides being assisted in the treatment of my case by Dr. W. H. Taylor, I had also the benefit of the advice of Dr. J. B. Hough and Dr. T. H. Kearney.

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Art. 7.—Case of Pelvic Tumor.—Post Mortem.

By JOHN E. FACKLER, M. D., Versailles, O.

Henry Wright, æt. 25; farmer, residing near Houston, Shelby county, Ohio; married; father of two children; nervo-sanguine temperament; has uniformly enjoyed good health, with the exception of an attack occasionally of malaria.

I was first called to see the case February 5th, 1877, in connection with Dr. J. C. Williamson, of Versailles, O., the attending physician. From him we learned that the patient has been sick five weeks, presenting the symptoms of peritonitis, with irritability of the bladder and kidneys. In the last two weeks these symptoms have disappeared, and the abdomen has become greatly distended by the gradual effusion into the peritoneal cavity.

The patient at the time of our first visit presented the following symptoms: Pulse 130; tongue coated in the center, border clean, and margin red; heart sounds normal; urine scanty, high colored, contains hæmatin, otherwise normal to ordinary tests. The distension of the abdomen was so great that nothing with regard to the nature of the case can be elicited by physical exploration, save that the distention is caused by the presence of fluid. It was deemed advisable to immediately evacuate the fluid by paracentesis abdominalis; twenty drops tinc. opii. with one ounce of rye whisky was administered. The patient was placed in a chair, a bandage put over the abdomen, the ends crossed over the back and given in charge of two assistants who were directed to keep up the requisite compression by traction; Dr. Williamson then proceeded with the operation by introducing a trocar two and a half inches below the umbilicus. Four gallons of dark purple fluid were drawn off.

The patient was placed in bed, the usual dressings applied. Ordered opiates if necessary to relieve pain and procure rest for thirty-six hours, then give mass. hydrarg. grs. x., and follow in six hours with castor oil. We left the patient in a comparatively comfortable condition.

Saw the patient again three days after the operation; appeared to be doing well. Upon making a critical examination of the abdomen I discovered a tumor immediately above the pubis and extending to the left, parallel with the margin of that bone, half way to the anterior superior spinous process of the ilium, and to the right about one inch beyond the median line of the abdomen; thus presenting a margin of one half inch to one inch in thickness, and appearing to dip down into the cavity of the pelvis. On making an examination per anum I found almost the entire pelvic cavity occupied by a tumor, very firm, not fluctuating, but slightly elastic and immovable, apparently being developed from the recto-vesical septum. In attempting to introduce the catheter into the bladder the course of the instrument was arrested in the membranous portion of the urethra, the tendency of the point being to rotate downward instead of passing upward and backward, nor was it possible to reach the viscus.

As a general treatment the patient was now put upon the iodide of iron, taraxacum and squills; hyoscyamus to relieve pain and procure sleep at night. Under this treatment, which was continued throughout, except that after the first ten days the elix. iodo. bromid. calc. comp. was substituted for the iodide of iron, the general health improved, the appetite became good, the secretions normal the secretion of the kidneys very active, the amount of urine voided in 24 hours varying from two pints to fourteen pints.

Notwithstanding these favorable conditions the fluid reaccumulated so rapidly in the abdomen, that it became necessary on the ninth day after tapping, to again relieve the patient of the distress and suffering caused by the presence of the effused fluid. This I proceeded to do by calling to my assistance Dr. Holopeter, of Houston. After placing the patient in the same position as for the previous operation, I immediately introduced the trocar at the point selected for the former operation. About twenty-four pints of dark purple fluid were withdrawn at this operation.

The enlargement of the abdomen in the hypogastric region and left iliac regions, caused by the development of the tumor, now became distinctly perceptible, and the tumor could be traced backward and upward, forming an inclined plane from the spine to the anterior wall of the abdomen.

The reaccumulation of fluid was so rapid that the operation of paracentesis abdominalis had to be performed on an average every ninth day. At each successive operation after the second, it became necessary to select a point nearly one half inch above the previous operation, in order to avoid puncturing the advancing tumor. After the third operation the patient was tapped in his usual recumbent position. No untoward symptoms attended the operation at any time. Thus the operation was formed in all seven times and twenty-one gallons of fluid, uniform in color and appearance, evacuated.

From the time of the first tapping until the termination of the case, just sixty days, the patient passed an average amount of eight pints of urine per day, making a total of four hundred and eighty pints, or sixty gallons of urine, s. g. 1.016.

Dr. Conklin, of Sidney, Ohio, was called in consultation, and saw the case February 27th, and was present when tapped March 4th.

Œdemia of the lower extremities came on about the 20th of February, and was very great for a couple of weeks, so as to threaten the vitality of the parts; the scrotum also became much swollen, but in the latter stages of the disease this effusion almost entirely disappeared.

The patient uniformly lay on his right side; was entirely unable to lie on his left side, and could lie on his back but for a very short time. He was entirely unable to urinate while in the recumbent position, but when on the night-stool the water was passed without any difficulty. Bowels moved spontaneously about every second day.

During the last fifteen days of the patient's illness the hypodermic injection of morphine was resorted to with the most satisfactory results, the patient maintaining a degree of comparative comfort to the last. He died on the 5th day of April.

Eighteen hours after death I proceeded, with the assistance of Drs. W. H. Rike and J. B. Ballinger, of Versailles, Ohio, to make a *post mortem* examination of the case. The examination was conducted in the presence of the following named gentlemen: Drs. Foust, Fulkerson and Laymaster, of Newport, Ohio, Holopeter, of Houston and J. C. Williamson, of Versailles, and David Pampell, Esq., of Sidney, Ohio.

The following are the conditions noted: Rigor mortis well marked; no external emaciation; abdomen greatly distended. By the introduction of a trocar about three gallons of fluid very similar in character to that above described were drawn off. The abdominal cavity was then laid open disclosing a mass of disease very difficult to describe: the ligament of the urachus was entirely destroyed; the cavity of the peritoneum contained a large quantity of pus and partly organized lymph. In the hpogastric and iliac regions, also in the epigastric and hypochondriac regions of the abdominal walls, there was an unusually large deposit of fat. The anterior margin of the liver had sloughed off, presenting a ragged appearance; no abscess in the organ; nothing unusual in the appearance of the stomach and spleen. The bowels and peritoneum were carried upward by the advancing mass from the pelvic cavity to a level with the lower rib at the spine, and to a point two inches below the umbilicus in front. A knuckle of intestine was adherent to the abdominal wall, on the right side by the bands of organized lymph; at this point in the abdominal wall there existed an ulcer of considerable depth.

The tumor on its upper aspect presented the smooth surface of the peritoneum with numerous crater-like openings into the mass beneath, from which issued the fluid that heretofore accumulated in the peritoneum. On dividing the tumor it was found to present a fibrous structure, very vascular, of dark purple color, traversed by numerous sinuses filled with a dark purple fluid. It appeared to have originated in the recto-vesical septum, from whence it developed, filling the cavity of the pelvis and extending into the abdomen as above described.

The tumor did not infilterate the tissues around it, but was so closely adherent to them, that it was almost impossible to seperate them. Nothing abnormal was observed in the kidneys and pelvic viscera. The weight of the tumor with its contents, was estimated by those present to be at least twenty pounds.

I submit the above history of this case for publication in your valuable journal, hoping that something of value may thereby be added to the record of demonstrated facts in clinical experience. The character of the fluid evacuated by puncturing the abdomen; the age and sex of the patient; the enormous quantity of fluid evacuated by the bladder and by tapping during the sixty days illness; the uninterrupted progress toward a fatal termination, notwithstanding the favorable response of the system to treatment, as well as the facts revealed at the *post mortem* examination, are certainly not without peculiar interest.

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Art. 8.—Indian Questions from a Medical Standpoint.

By FORDYCE GRINNELL, M. D.,
Physician to Wichita Agency, Indian Territory.

If one could at this day enter an Indian village where the observances of ages past are still maintained in their purity, unchanged by the recent advances of civilization, he might imagine himself transferred backward through the dim chronicles of our race, to the beginning of Grecian, Roman, or Egyptian history. He would witness the same practices they observed four-thousand years ago. The doctrine of the early philosophers is still their philosophy. Their ideas like the seeds taken from the coffin of mummies where they have been shut up for thousands of years, seem to-day to be blooming and bearing the fruit of the days of Thales, Diogones, and Anaximines.

The word medicine as used by the Indians, embraces in its meaning that power delegated by the "Great Spirit" to certain individuals, by which they are enabled to direct the affairs of their people, whether these affairs pertain to their tribal relations, to going on a hunt, engaging in war, or curing the sick.

It is seldom or never applied to remedies used, but rather to the power given to make a proper use of the right means. The term, translated, "Medicine Man" among some of the tribes, means the "one who talks with God" and this is the great idea conveyed by the term among them all. As among the Hebrews, he is the high priest, law-giver and physician combined in one. These then constitute the ruling element among all Indian tribes. Chiefs are often made or deposed at their pleasure. The medicine man must be a high priest and minister in things spiritual, for the very reason that in dealing with disease, he supposes he is dealing with evil spirits, against which spitual arts must be used. As these claim and their people believe that they receive power from above, they come to inspire a kind of awe and reverence among the many, which no doubt has its influence in a psychological point of view. From their decision, like the Grecian oracles there is no appeal. As when the warning from the oracle of Amun caused Necho to stop the construction of the great Egyptian canal, so the decree of the medicine men decided the fate of Gen. Canby and Dr. Thomas, despite the earnest entreaty of Capt. Jack and the knowledge that his blood would pay the penalty.

A man in the Comanchie camps is sick. It may be a pneumonia, an ague, or the toothache. Let it be what it may it is an evil spirit to be exorcised. It is the medicine man's province to do this, not to cure a disease—or aid nature in warding it off, but to exorcise an evil spirit. Of what use then are special remedies. They are seldom or never used, or if upon occasion roots or herbs are employed, they are used only as a part of the necessary machinery, without reference to applicability to a given case. Indeed the same herb may be employed in the most diverse ailments. It may be steeped in a little water over the coals and a portion given to the patient from time to time, or the medicine man will chew a portion of it and eject the medicated saliva into the sufferers mouth. Sometimes this is only squirted from the mouth over the patients body, or again retained in the mouth of the operator while he applies it over the painful regions, and employs a powerful suction, which an enormous mouth and long practice has enabled him to do to perfection.

I have seen a "Medicine Man" thus apply his mouth over the abdominal regions of a patient suffering from colic and produce a continued and powerful suction until the parts were reduced almost to a blister, and finally he triumphantly exhibited what appeared a thick tenaceous piece of mucous (which continued suction had no doubt produced in his mouth), and here was the offending cause removed. The unseen with the tangible. The spirit was cured!

But to return to the man in camp with pneumonia or ague. Three days perhaps are allotted as the time in which the cure will be accomplished. The line is drawn between the patient and the fire which is in the centre of the lodge. No man woman or child must cross that line else the spell is broken—the medicine is spoiled, and all must be done over again. At another time a line is drawn a few feet in front of the lodge, no one must cross this line with shoes or sandles on his feet. The "Medicine Man" virtually says to you: "Put off thy shoes from off thy feet, for the ground whereon thou woulds't stand is holy ground." The roots or herbs before alluded to may be employed in one of the various ways mentioned, but in addition to these instrumentalities, drums are employed—being beaten by the "medicine men" with the view of scaring away the evil—and from the combination of hideous noises, to which the intonations of the human voice are often added, one would think if the theory were correct, it might prove effectual.

But the three days mayhap have expired and the spirit yet maintains possession of the patient. Another "medicine man" is called. Three days more are allotted him. He employs his own peculiar medicine. The lines are drawn. Instead of the drums he brings a gourd in which are various articles, some of which produce a rattling sound. It is no more soothing than the drum of his predecessor, and hence it may prove effectual.

What does the gourd contain? A variety of articles all of which are supposed to be powerful against the evil. They are as powerful as the charms of the wierd sisters, sought by Macbeth, and some of them perhaps the same. Some part of the toad, the bat, the serpent. "The eye of a newt, and the tongue of a dog, the leg of a lizzard and the wing of a night owl, the scale of a dragon, the tooth of a wolf, the maw of a ravenous salt-sea shark, the mummy of a witch, the root of the poisonous hemlock (this to have effect must be digged in the dark), the gall of a goat, and the liver of a Jew, with slips of the yew-tree that roots itself in graves, and the finger of a dead child. Some of these ingredients might make a better "witch broth" than a rattle, but the effect is the same, and effect is what is wanted.

But why with discordant sounds do they seek thus to drive out discordant spirits? Is it with them as with certain of later days. "Similia similibus curantur?"

Why not the rather like that eminent physician of Ephesus, Cerimon, order "soft music to be played" that they thereby might *be enticed* to quit their hold? Why might they not be ordered to listen to the "music of the spheres" that the harmony of sweet sounds might dispel the cloud of gloom and darkness? But such is not the case. Does this indeed indicate the pervertion of our nature? Do these employ inharmonious sounds because of inharmonious souls, or for the reason that men love darkness rather than light?

But perhaps the second "medicine man" has expended his three days in vain endeavors, health neither coming to the cheek, nor death to the relief of the sufferer.

They send afar for yet another "man who talks with God." If in spite of all the enchanted lines, and the din of drum and gourd; and herb or bark of prickly ash, thrown like Martin Luther's inkstand against the spirit of darkness, if yet health comes the fortune of the new "Medicine Man" is made. His medicine is strong. His lodge is heaped with robes. His children do not go hungry. But if the patient die, why it was a spirit that "would not down." The Gods decreed it. And the name of the departed is never mentioned after. They will not talk about his death. Like the old Romans they avoid the mention of death. They tell us how long a person lived, never, when he died

As Dr. Draper has remarked in his Intellectual Development of

Europe. "Man everywhere, in his barbarous state, is a believer in sorcery, witchcraft, enchantments; he is fascinated with the incomprehensible. Any unexpected sound or sudden motion he refers to invisible beings. Sleep and dreams, in which one-third of his life is spent, assure him that there is a spiritual world. He multiplies these—unrealities; he gives to every grotto a genius—to every tree, spring, river, and mountain a divinity.

Again the doctrine of Diogenes, that the air is actually a spiritual being, is a part and parcel of the same faith, a faith which regarded the gases as of a spiritual nature, "and gave the name under which they pass to-day "gheist" or gas," from a belief that they *were ghosts.* "If a laborer descended into a well and was suffocated, as if struck dead by some invisible hand; if a lamp lowered down, burnt for a few moments with a lurid flame and was extinguished; if in a coal-mine when the unwary workman exposed a light, on a sudden the place was filled with flashing flames and thundering explosions, tearing down the rocks and destroying every living thing in its way, often too, without leaving on the dead any marks of violence; what better explanation could be given of such catastrophes than to impute them to some supernatural agent."

Thus we see with similar degrees of civilization, a like faith exhibited, though four-thousand years should intervene between its exhibition among the Egyptians, Greeks or Romans, and the American Indians or the inhabitants of Central Africa of to-day. We trace it further in their customs. Take for instance that of burial. A Comanchie dies. The relatives begin a peculiar wailing. The immediate members of the family take off their customary apparel and clothe themselves in rags: "sit in sackcloth and ashes." They cut themselves across the arms, breasts, thighs and even faces—until blood begrimmed, they present indeed a horrible sight. Hired mourners are not infrequently employed to aid in the general "Miserere." Those nearly related to the departed, cut off the long locks from the entire head, while those more distantly related or special friends, cut the hair only from one side of the head. When a chief dies the young warriors belonging to his band, cut the hair usually from the left side of the head. This is cut rounding from before backward, and not shingled as when the near relatives remove the hair in more excessive grief. The face as before mentioned is not infrequently marked with paint in some hideous form, or the whole painted black. That similar rites prevailed in the early days of Hebrew History, we may infer from these commands in Leviticus as well as other records.

"Ye shall not round the corners of your beard, neither shalt thou *mar* the corners of thy beard. Ye shall not make any cuttings in your flesh for the dead, nor print any marks upon you! I am the Lord."

As treasures are now found locked within the tombs of Ephesus, Cyprus and Mycenæ which were buried with the dead, ages since, so he who now examines the few undesecrated tombs of the Incas of Peru, or the Aztecs of Mexico, or the Comanchies of these regions will find buried with the bodies all those articles held most sacred by them during life. In such manner does history repeat itself.

But a change is being wrought in the belief and hence in the habits of many of these people. These changes give rise to the following questions:

First, what effect has contact with the European on the Aborigines of our country?

Second, are the Indians dying out?

The answers to these questions have thus far varied partly from the uncertain data of the past, and partly from the widely varying points from which observations have been made.

First, as to the effect on the Aborigines of contact with the European. That two elements so diverse should not readily affiliate is evident, only as one adapts itself to the conditions of the other. Unfortunately the first overtures have been on the side of the white element. The movement has been a retrograde, a stooping of the superior—rather than an uplifting of the inferior. In short the worst element of the white race has sought an asylum among the Indians. The immediate result to the Indian has been *disease, physical and moral.* The want of affiliation which resulted in the stronger making war on the weaker, even from the first discovery of their lands to the present time, has resulted in the destruction of many, but these have been few in number when compared to those produced by the *diseases introduced among them.* Especially among these have epidemics of the contagious diseases made fearful havoc. But the less apparent but more insidious class of venereals I doubt not *have destroyed more lives than the sword.*

In some recent observations relating to Indian civilization and education by John Eaton, we note the following:

"Adair who lived forty years among the Southern Indians, estimated the number of Cherokees in 1722 at 6,000 warriors, or as is usual counting a family of five to each warrior 30,000 souls, and 40 years later at 2,300 warriors or 11,500 souls. Why this decrease? Drake states that in 1738 or 16 years after Adair's first estimate, the small-pox having been introduced among them by the slave dealers, *one-half* of the population was swept away by it. Drake further says that in 1819 there were about 10,000 Cherokees, and in 1825 they had increased to 13,563. According to the report of the Indian office for 1876 they numbered 21,072. Thus since the ravages of small-pox, there has been a steady increase, notwithstanding the loss of life attending the late civil war which effected them in no slight degree.

The protective influence of vaccination, the adoption of the habits of civilized life, after the untoward effects of the first contact of a new race, by the introduction of new diseases; has been to their decided advantage, as a steady increase in population will indicate.

It is evident the Cherokees are not dying out. We can reach our conclusions on these questions best, by noting the history of those tribes with which our Government has longest had relations. and of whose comparative strength from year to year we have the most accurate knowledge. The Seminoles like the Cherokees afford some items of decided interest in this connection.

As compiled in the observations of John Eaton above alluded to, we find the Seminoles estimated in July 1821 at 4,560. On the eve of the outbreak of the war with the Seminoles in 1835, President Jackson estimated their military strength at 400 warriors, indicating a population of 2,000, making the usual estimate, though he estimates the number of warriors as larger than usual in proportion to population. Gen. Cass at the same time estimated the warriors at 750, making the whole strength 3,750. Negroes and perhaps some Creeks were added to the fighting force from time to time during the continuance of the war, so that in 1836 Sprague estimated the fighting men at 1,200. The vicissitudes through which the Seminole population passed in the seven years of a destructive war, during which they contended against the whole available regular army of the United States, aided by a portion of the navy, and a malitia and volunteer force of more than 20,000 men from first to last, can never be known; the Indians always concealing their losses as far as possible, and their adversaries usually overestimating the number of Indians slain. Our own losses were over 3,000, more than seven times the whole number of Seminole warriors at the beginning of the war, according to the estimate of President Jackson. After their removal to Indian Territory, save about 500 remaining in Florida in 1850, an estimate placed at 1,500. In 1860 the number in Indian Territory was reported at 2,000. In 1870—2,136. In 1876 the number in the Indian Territory had increasd to 2,553 from 2,438 in 1875.

We here see after the culminating point had been reached in losses from pestilence and sword, that a gradual increase has taken place. Many of the tribes are now in this state of transition, and while these are diminishing, others are steadily increasing.

The Iriquois confederacy, comprising the Mohawks, Oneidas, Cayugas, Onondagas, Senecas, and since 1712—15 the Tuscaroras, numbered in 1660 (exclusive of the latter) according to the Jesuit Relation 11,000 or 2,200 warriors.

In 1685 they numbered 10,250.
" 1720 " " 10,000.
" 1738 " " 8,825.
" 1770 " " 10,000.

Between this and 1818 during the French and Indian wars and the American Revolution, they became divided a part remaining in New York and a part in Canada. Those in New York:

In 1818 they numbered 4,575.
" 1845 " " 4,836.
" 1865 " " 5,300.
" 1875 " " 6,624.
" 1877 " " 6,715.

Those in Canada in 1876 numbered 6,953 and 6,715 in the United States, gives a total of 13,668, a number considerably exceeding any trustworthy estimate of their numerical strength *for more than one-hundred years.*

To the testimony afforded by the figures relative to these three tribes, the Iriquois, Cherokees and Seminoles, might be added that of many others, did time and space permit, all showing an increase in members of those once settled upon reservations, and under civilizing influences.

Our estimated Indian population for 1834 according to report of the Secretary of War was 312,610.

In 1850	Report of	H. R. Schoolcraft,	388,227.
" 1850	"	" Indian office,	254,300.
" 1870	"	" " "	313,351.
" 1876	"	" " "	291,883.

The present actual enumerations, rather than the former estimates will give additional value to the numerical reports. But taking these figures approximating the truth, it is evident we are not yet done with the Indian Problem—nor are we likely to be for many years to come. As with the Iriquois, Cherokees and Seminoles, it may one-hundred years hence, be *numerically* a greater question than at present, but as to a quiet, peaceable population a question practically settled.

One of the means as before remarked by which these people have rapidly diminished in numbers on coming in contact with the white race, is by the spread of venereal disease.

The freedom of the wild tribes from these diseases — of those who have mingled little or none with the roaming frontiersman—has been often remarked; but their rapid spread and destructive influence on those tribes who have long received the outcasts of civilization, or who have long been located near military posts, has as often been remarked. These diseases, until combated by physicians and remedies furnished by the Government, within the past few years, had unbridled sway, and destroyed many lives, beside implanting diseases transmitted "to the third and fourth generation," and sapping the vitality of entire families and bands.

Dr. Bateman, physician at the Round Valley Agency, California, stated in his report for 1875: "Constitutional disease everywhere prevailed and had well nigh tainted the whole mass; births were infrequent and the enfeebled children, many of them, were short lived, not able to survive the teething period. For the eight months ending June 30th, 1874, there were 46 deaths and 29 births. For the year ending June 30th, 1875, 44 were born and 39 died." Here we note the marked improvement immediately resulting from the use of appropriate remedies. But moral influences were not without their service.

The report continues — the encouraging rate of improvement here shown, which is especially marked in the various *forms* and *complications* of *venereal disease*, hitherto so universally present, is mainly due to the great moral, social, and religious reforms wrought among them. As a body they evince fidelity to their christian and marital obligations, convinced that moral and physical reformation and renovation are the essential and only means of self-preservation.

Dr. Southworth, physician at Ft. Berthold Agency, Dakota, remarks in report for 1875: "The proportion of venereal disease is very slight, and would be less, if more stringent measures could be adopted to prevent their intercourse with the military and straggling whites."

Reports might be quoted in numbers all bearing the same testimony. This phase of the question is here adverted too, to indicate one among others of the reasons of a temporary decrease in numbers of many Indian Tribes, as:

"Westward the tide of empire takes her way." Not war alone is responsible, but a "pestilence that stalketh abroad at noonday" adds its destructive force. Not alone a want of conformity to surroundings, but a tendency to the adoption of the first presented and worst feature of so-called civilization.

But another thought presents itself. The tendency of human nature to shift responsibility. Adam said: "The woman gave me and I did eat."

No nation has cared to claim priority in the origination of syphilitic disease. The French would prefer to call it "*mal Neapolitain*." The Spaniard "*Morbus Gallicus*," or all unite to attribute to the American Indian a disease apparently older than either of the three nationalities dubbed with its name.

A coincident has often been esteemed a cause. The Egyptian noting year after year that the rise of the River Nile, upon whose fertilizing waters depended all his happiness and even existence—took place at the same time that the Dog Star Sirius came forth in splendor with the morning rays of the sun. Concluded that the rise of the Nile actually depended upon the benign influence of Sirius.

Just about the time of the discovery of America (although the coincidence was not noticed until some time after), a peculiar disease the result of uncleanliness, began to manifest itself, through the commotion of those times over many parts of the globe. It was talked about and written about as a new thing. From whence did it come? America had just been discovered, and numerous persons were just discovering a personal acquaintance with syphilis. Here was a remarkable coincidence! This must be the solution. It is one of the discoveries of Columbus! A continent was certainly enough for one man to discover, with syphilis thrown in it was too much!

Why if an Indian disease is it never known among them until the white man approaches?

The transition in the history of the Indian from the descending to the ascending series, numerically considered, occurs in my opinion:

1st. When he is located upon a Reservation he may look upon as his home.

2nd. When the influence of bad white men is removed.

3rd. When the Government providing remedies and skill to use them, sees to it that all are vaccinated, and all exempted from further extraneous contamination with constitutional disease. In short when prophylactic as well as remedial measures are employed.

4th. When incentives to industry looking to self support are provided, as well as those moral and religious influences which good educational institutions may afford.

Many of these conditions are now realized in numerous tribes. Some exist in others, while some are absent. For instance in some all exist, save that unscrupulous white men have full license to spread their contaminating influences. In others the prophylactic measure of vaccination has only partially if at all been enforced. In other cases few or none of these conditions exist—and a constant decrease in numbers results. I do not carry these propositions still a step further, as does S. R. Riggs, long a laborer among the Sioux. When he says: "Thus the first steps toward civilization naturally, almost necessarily, increase disease and death. So common is this that we have been led to note, in regard to many Dakota families that they raise almost no children, some none at all, and in carrying on boarding-schools—among them it often happens that a scholar must be sent home to the wild (*i. e.*: out-door) life if the health is to be restored. On the other hand when the crucial period is once passed, the gospel of cleanliness becomes in a large sense, the gospel of physical salvation. Then the families and communities commence to increase again in numbers."

We are slow to admit that "steps toward civilization naturally or necessarily increase disease and death." Civilization does not kill. Education does not destroy life, though improper methods may, but it rather gives the means of prolonging life. The steps referred to are not steps *toward*, but rather away from true civilization. Not all the habits of civilized life, are civilized. The first things learned are not civilizing.

I see Indians shuffling cards with dexterity and using plain English terms coined in the most horrid oaths, who know no other English, and as to other vices before unknown, they have been apt pupils, and this is why "Many Dakota families raise almost no children, or none at all." It is not the civilization.

I may perhaps be pardoned for inserting an extract from my Quarterly Medical Report for the last quarter in 1877, which gives my experience in reference to health in Indian Boarding Schools. The children who are taken into the school from the camp, and hence have a more varied diet and regular meals, beside comfortable sleeping apartments and clean beds are remarkably healthful. My experience in this respect differs widely from that of those who assert that the Indian child received into the school from camp does not thrive, but becomes sickly and must again seek the untrammeled freedom of the forest or plain! So far from this being the case here, I do not think a school having from 70 to 100 in constant attendance can anywhere be found, whose health record will give a better showing than that of the Wichita School. The health record of three other Indian Schools with which I am acquainted, are nearly or quite as good, though among the Cheyennes, Comanchies and Kiowas, reckoned among the uncivilized Indians. During the four years in which I have observed the Wichita School, but two deaths of pupils in actual attendance have occurred; one of these was a boy who joined in a three-mile foot-race and then immediately exposed himself to cold. The other was a child of feeble constitution upon entering the school. Most of the cases of sickness in the school have been of malarial character, and the pupils have been infected with the poison when coming from the camps in the Autumn and joining the school. But the unusual freedom of the students (once initiated into the school), from malarial disorders or other sickness, has been a matter of general remark. When the Indian is so far weaned from his former habits as to attend school the scale with him is beginning to turn. The upward tendency is certain.

The foregoing brief discussion indicates some of the effects of the intermingling of Europeans with our Aborigines, and to the question, are the Indians dying out? it may be answered yes, and no. Some large tribes are steadily increasing, some are diminishing. Some have reached the culminating point and are tending upward; some have not yet reached that point. Their numbers in the aggregate will probably never be less than at present. They will not always however be known as Indians, as we use the term, as are many of the Cherokees, Creeks and Choctaws of to-day, they will become an enlightened and educated portion of our community.

The Indian question as it now exists will then no longer be a question, for no other than amicable relations can exist between a just Government and a people who are seeking the light.

The same sanitary measures by which the average age of our people becomes more extended, can have no less influence on the Indian race.

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Article 9.—Case of Ovariotomy. Death on fourth Day.

By B. J. DAY, M. D., EVANSVILLE, IND.

We are never eager to publish our unsuccessful cases, but I hold that whatever is done by each, whether in medicine or surgery, should, were it possible, be made known to all, for the benefit alike of both profession and patients, and I report this case under a sense of duty, feeling that there was nothing in the procedure either to be followed or shunned, it should nevertheless be placed where it might be taken into the statistics of ovarian surgery.

The patient evidently died from protracted shock, but every means at my command had been used to bring up her vitality before operating, and it was undertaken with full con-currence of the patient, after a truthful statement had been made to her and her friends, of what is shown in the statistics of ovarian tumors and ovariatomy in general, with respect to prognosis, and the opinion of myself and others, with respect to her prospects in particular, whether operated on or not.

Mrs. H——, a native of Vermont, but a resident for many years of this city, aged forty seven years and the mother of a large family, sent for me to visit her in April last. Found her without fever, but complaining of a painful feeling of the abdomen referable mostly to the epigastric region. She thought her digestion badly performed and suspected herself of being pregnant, though she had her catamenia regularly and had no enlargement which she did not ascribe to obesity. Had always been well as she thought, but for two or three years had been growing fleshy and was somewhat given to shortness of breath on exertion. My examination was not critical and my advice to her was, to see that her bowels did not become constipated, that she use counter-irritation moderately over her abdomen and waist developements. Was called again July 15th. and found symptoms aggravated. The pain heretofore confined to the epigastrium now extended down the right side, even to the groin, and sometimes over to the left side of the abdomen, which was very perceptibly enlarged; and I could feel a tumor or growth through its walls on the right side. On vaginal examination the uterus was found high up, but there was no attempt at obliteration of the neck, and no fluctuation could be produced. A close aural examination disclosed neither placental murmur nor pulsations of a fœtal heart. Gave it as my opinion that she was not pregnant, but that she had probably an ovarian tumor. Directed pressure by corset and the use of tincture of opium to relieve pain. Up to September 1st. the abdomen had enlarged very rapidly and there was great personal discomfort. It was evident she could not long survive, should the functional embarrassment to her abdominal and thoracic viscera, consequent on the great pressure to which they were subjected, not be removed; so, in consultation with Dr. Owens of this city, on that day I performed the operation of paracentisis abdominalis; drawing off from the tumor over eight pounds of a thick, gelatinous fluid of a greasy feel. The sack was not emptied by a great deal, I know at the time, which I ascribed to the very thick character of the fluid, though a trocar having a canula of three eights of an inch diameter was used, but which, as will be shown in the subsequent portion of this narration, was principally owing to the unyielding character of its walls. The attempt to get away a greater quantity of fluid was desisted from, in consequence of the exhaustion of the patient, sitting as she was, and she was permitted to lie down. She had not for days been able without great distress to either sit up or lie except on her right side. It was hoped, and the hope was expressed to her, that she might be able to lie on her back after the operation; the dyspnœa following attempts at it, being supposed to result entirely from pressure transmitted through the diaphragm to the lungs. The next day the patient was no better, pulse 120 per minute, extremities cool, dyspnœa unabated, and this condition of things continuing for several days, I thought it necessary to seek for further light, when on making a physical exploration of the chest, I found complete flatness on percussion on the right side from base to summit, with a difference in measurement in favor of that side of about three fourths of an inch. On the 7th, in consultation with Dr. Wheeler of this city, I drew from the right pleural cavity, tapping between the sixth and seventh ribs, four pounds of a light straw colored liquid, but desisted before all was drawn, the patient becoming fatigued, the operation being a slow one in consequence of the small size of the instrument used, which was only an exploring needle.

She seemed very much relieved by the operation, so that by the 10th, the pleuritic stiches following it having been kept down and finally subdued by the administration of the sulphate of morphia as required, she was comparatively comfortable, though still only able to lie on her right side, and her pulse stood at 100.

Again on the 13th, assisted by Dr. Sawyer of this city, I performed the operation of paracentisis thoracis and drew off over four pounds of a fluid similar to that drawn on the 7th; except that it was higher in color and contained more solid matters. On standing, insular collections of lymph took place in the vessel. A very much larger instrument was used in this than in the previous operation; my object being to thoroughly empty the cavity with a view of getting the patient in the best possible condition, under the almost hopeless circumstances, to undergo the operation of ovariotomy; she, an estimable lady and one of great firmness of character, having determined to undergo it and take her chances.

On the next day I found the patient very much more comfortable, except that she was having pleuritic stitches, and able to lie on her back. She went on to improve so that by the 20th she could lie in any position and could sit up an hour or two each day. Her pulse was below one hundred and having lost an intermission it had, was improved in quality. By the 26th, the day determined on for the operation, an earlier time not having been chosen, because I had hoped the relief following the last removal of fluid from the pleural cavity would prove more lasting, and I wished, too, to have present a few medical friends from a distance, I say, by the 26th the patient had lost in condition and was not in so favorable a state for an operation as she had been on the 20th, but all preparations having been made, I did not defer it, believing nothing would be gained by doing so.

Patient was prepared for it by purging on the 25th, followed the next morning by an enæma, and being confined to a diet of milk and beef-tea. This having been done; on the afternoon of the 26th, after introduction of the catheter, the patient was chloroformed and put on the table, properly prepared, when I proceeded to operate as follows, in the presence of a number of my medical friends resident in and out of the city. I should say that a good draught of brandy was giving before giving the chloroform. The skin and subjacent tissues were divided on a director in succession down to the linea alba, to an extent reaching from near the symphisis pubis to an inch or more above the umbilicus; the incision passing immediately to the right of the umbilical indentation. When this was done, and a venous branch secured at the upper commissure of the wound, hemorrhage from which could not be controlled by torsion, and hemorrhage stayed in flaps of wound by pressure and mopping with sponges squeezed from cold water, the linea alba, being nicked so as to admit of the introduction of a small groved director, was laid open to the extent of the external incision. As this was done, a very considerable quantity of water escaped from the peritoneal cavity and the tumor was disclosed; which, on investigation, proved to be free from adhesions except at a point at which the omentum had been transfixed in tapping the tumor on the first of the month. Remembering the viscid character of the fluid then drawn I tapped the cyst, after breaking the adhesion, with a trocar having a canula of over a half inch in diameter, but to my surprise very little fluid came away. This was explained when on attempting to draw the sack forward with fingers and canula, I found it so thickened in its walls, and so unyielding, as not to be made to collapse enough by this procedure to pass through the opening made. Extravasation of contents of cyst in peritoneal cavity had been guarded against by extemporizing a drain tube by tying a hogs bladder, open at its neck and perforated at its fundus, securely about the neck of the canula. Carbolized sponges with warm water only, were used after opening the peritoneal cavity. Not wishing to enlarge the wound I passed my hand, prepared as in searching for adhesions, to the posterior part of cyst, and, by making pressure gently, extruded the tumor after considerable fluid had escaped. The pedicle about an inch and a half long, flattened, and two and a half inches broad, was transfixed at its middle with a double silk ligature, firmly tied and divided about a half inch from the ligatures, when, the pelvic cavity having been well sponged out, it was dropped in. One strand of each ligature was divided near its knot and the other two being united, were brought out at the inferior commissure of the wound.

The wound was closed by silk ligatures placed about an inch a part, extending down to and through the peritoneum, and further secured by strips of adhesive plaster embracing two times the circumference of the body. A compress and light corset, stiffened with strips of thin paste-board completed the dressing.

About three fourths of an hour were consumed in the operation, the sack, thickened very nearly throughout, was thickened in places to two and a half inches or more and weighed, empty, six pounds. No estimate was made of the quantity of fluid that flowed away uncaught, but it was not much. In external aspect the tumor was smooth and of a shining, grayish color, covered by peritoneum, while within it was ragged, seemingly from fragments of ruptured sacks, studded with small cysts, varying in size from a pea to a hen's egg, of delicate texture and filled with a thin clear liquid; over all of which was besmeared a thick, glairy, glutinous material, similar, except as to consistency to that drawn off. Patient was permitted to come from under the chloroform after closure of the wound and was left to lie on the table for a half hour or more before being removed to bed. During this time she seemed cheerful and her circulation, that had during the latter part of the operation flagged so much as to hurry me through with it, came up and improved in quality, but on being placed in bed, in which she was perfectly passive, she became sick and vomited. This I hoped was a temporary action of chloroform, soon to pass off, but in this I was mistaken; for the unsettled state of the stomach continued, added to which there came on great pain in the abdomen, a damp, cool skin and feeble pulse, so that she was unable to retain anything given by the mouth for her relief; and I resorted to subcutaneous injection. A full dose of morphia was in this way given.

On the next morning, the patient, though comparatively free of pain, was very feeble, and the cool skin and regurgitation, that had set in soon after being taken from the table, had not ceased.

From this time sulph. morphia was given by subcutaneous injection as occasion required to keep down pain. At noon found she had sunk much, pulse scarcely to be counted, cool skin and regurgitation continuing. Brandy was given by subcutaneous injection. Beef-tea and milk thrown up the rectum. Thirst assuaged by pellets of ice held in the mouth. Night: Patient no better. Had some twitchings of arms and was somewhat incoherent. Had made several attempts to get out of bed. On the next day (28th) found her in seemingly a better condition: Pulse stood at 120, she had less regurgitation, less coolness and sweating and seemed quite at herself. Other treatment continued and sulph. quinine added to subcutaneous injection. Night: Had vomited and regurgitated several times during the day. Skin, still cool and moist. Pulse 100 and distinct, though weak.

29th. Morning. Skin dry for the first time since setting in of shock. Pulse 120. Bowels tympanitic. Stomach more settled. Evening: Considerable heat of skin during the day, and reported a little incoherent during early part of the day. Abdomen tense. Still regurgitated at longer intervals, but vomiting had ceased. Ice was put up the vagina, from which great relief was expressed, and light bladders of ice were applied over the hypogastrium; but so as not to rest on the flaps of the wound. Seemed quite at herself, pulse 120. Urine had been drawn regularly by the catheter every eight hours since the operation as a precautionary measure, though she had voided it several times voluntarily. Up to 8 o'clock, p. m., the patient seemed no worse, but at this time she, becoming greatly excited on the arrival of her brother from Connecticut, gave way, took on a cool and moist skin, and died comatose, before the next morning.

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Art. 10.—Diseases of the Eye.

By W. R. AMICK, M. D., Cincinnati, Ohio.

Some have supposed that the different kinds of diseases of the eye are nearly allied, so much so that they prescribe one medicine or solution for the various ailments of this organ. For instance Kibner makes a three or four grain solution of acetate of lead and brings it before the public as "Kibner's celebrated eye-water," for the cure of all diseases of the eye. John Smith has a sub-acute conjunctivitis and procures a bottle of the celebrated (?) medicine. He uses it according to directions, and in a few days his eyes are well. Then he proclaims to his friend Jones who has sore eyes, the wonderful cure that was produced in his own eyes. Thomas Jones has been troubled with iritis for sometime, and resolves to try a bottle of the "celebrated." After using it a few times, he finds that instead of his eyes getting better, they are getting worse, and finally has to give up the use of the medicine altogether. In the meantime Smith, who does not know how Jones is getting along, meets Bill Tomson, who also has some eye trouble, and persuades him to try a bottle of the great-cure-all. Tomson has ulceration of the cornea, and as a consequence is in a deplorable condition. So to accommodate Smith, and with the hope of obtaining some relief from the intense photophobia with which he is suffering, he procures a bottle and commences to drop the solution into his eyes. But after using it a few days he does not find the desired and expected relief, so he votes the Kibner's celebrated as a humbug and throws the bottle out of the window. In all probability his eyes were made worse by the use of the solution, besides he may have deposits of lead in the ulcers, leaving opacities in the cornea which, if central, would seriously interfere with his vision, when once he had succeeded in getting his eyes cured.

Now the question will arise with some, what is the reason that Smith's eyes were cured, while Jones' and Tomson's were made worse. This question is a natural one and can easily be answered. First, we will say that it does not depend upon any constitutional idiosyncracy, although that, in some cases at least, has to be taken into consideration but simply from the fact that they had different diseases which required different treatment. John Smith had conjunctivitis and procured a bottle of medicine containing an astringent, he used the medicine and got well. The reason is, that for conjunctivitis an astringent is indicated. As the medicine fulfilled the indication of the disease, that is all that was required. It was the proper remedy and produced a good result Jones had iritis. Now there is a vast difference between the conjunctiva and the iris. The former lines the lids and is reflected over the anterior external portion of the eyeball, while the iris, that membrane which gives the color to the eyes, is within the globe. When the iris is inflamed, the eye is in an irritable condition, and if you use astringents, you increase the amount of irritation instead of lessening it. What is necessary in this case, is something that will soothe the eye and relieve the irritation and inflammation. If an astringent increases the amount of inflammation and irritation in iritis, then it is very evident that all such solutions are contra-indicated. The same can be said in Tomson's case. His trouble is due to a different cause. The anterior portion of the eye, known as the cornea or window of the eye, was not only inflamed but ulcerated. This condition of the eye is very painful especially in a bright light. In fact, if the ulceration is extensive, it is impossible for the patient to open his eyes, even for a moment in a moderate light, without suffering severely. Tomson's eyes were more sensitive to the light than Jones'. What is required in Tomson's case is, something to remove the irritation and cause the ulcers to heal up. While an astringent might fulfil the indications for the latter, the former would contra-indicate their use, so we would have to procure another remedy. Smith, being ignorant of the fact that the different structures that enter into the formation of the eye are liable to become separately inflamed, but acting on the principle that one inflamed eye is the same as another, and knowing that the said medicine had acted charmingly in his case, recommended it to his neighbors. That he made a great mistake, we all admit, for it needs no argument when the facts are stated, yet his intentions were good.

We have stated that there was a difference between all these cases, first, different portions of the eye were affected, and second, the treatment would also be different, depending on the portion that was inflamed and the cause.

Now it is evident from the above, that it is simply impossible for one medicine or solution to meet all of the requirements in the different diseases of the eye. Kibner's solution may be good in a certain class of cases, but there are probably just as many in which it would do harm. If the parties who use this solution, without knowing its contents or the nature of the trouble with which they are dealing, should happen to lose their vision, they would then come to the conclusion that the eye was rather too precious and delicate an organ to practice upon with the various nostrums that are sold throughout the country.

There are a great many people who have sore eyes, yet they think that they cannot afford to lose the time from their business, or else their financial condition will not admit of their going to a specialist and remain under his charge while their eyes are being treated. This being the case they procure a bottle of Kibner's or some other man's eye-water and use it. The result in some cases is far from encouraging, and they are worse off after than before they used the medicine.

There are a great many people suffering from weak eyes, chronic catarrhal ophthalmia, and chronic granulated eye-lids. They do not consider that they ought to consult an oculist in regard to them, for they are not sore enough for that. Yet they find whenever they go out in the wind or bright sunlight, they weep very freely and sometimes feel as if there was sand, dirt or grit under the lids. Everything has a beginning, and if this condition of the eyes is not checked by the proper treatment, it will lead to something more injurious. Persons affected in this manner are the ones who frequently resort to the eye-waters that are for sale by the druggists. If such persons could consult an oculist and be examined, he could give them directions and treatment, by means of which at least a great many of them could remain at home.—Or, if circumstances were such that they could not visit the specialist, they might write and give him a description of their symptoms, condition etc. But if possible, it would be better to consult him in person, and then they could be properly advised. From the nature and condition of the different organs that enter into the formation of the eye, it is utterly impossible for any one nostrum to meet all the requirements of its various diseases. Even the same disease may require a change of treatment.

There are some diseases of the eye, during the course of which it is absolutely necessary for the patient to be under daily observation. But a great many people suffering from chronic conjunctivitis or granulated eye-lids, can be examined occasionally, and remain at home the rest of the time. We do not make this statement as a mere hypothesis, but speak from experience.

CASE I.—CHRONIC CONJUNCTIVITIS.

John Hale, æt., 28. Has never had any ophthalmic trouble previous to the present attack. About a year ago he noticed that when the wind blew into the right eye, it felt weak and would weep freely. This did not give him very much trouble at first, but later he noticed that the weeping became more marked, so much so at times that he had to protect it with his hand, or keep it closed. He did not have any pain in it, neither did the light produce any unpleasantness, but simply the inconvenience and annoyance from the free secretion of tears. A few weeks later he noticed a small amount of muco-purulent matter at the inner corner of the eye, of a morning. He did not have any uncomfortable sensation in or about the eye, such as grit or fine sand under the lids. A few of the veins in the ocular conjunctiva were dilated. On everting the upper lid it was found that the inflammation was confined to that portion of the conjunctiva that corresponds to the upper margin and extremities of the tarsus. On the lower lid the inflammation was general, involving the entire conjunctiva.

The treatment in this case began with the usual astringent remedies used for conjunctivitis. This might have been all that was required, but in the majority of cases of chronic trouble, there is more or less debility of the constitution. In addition to the above he received constitutional treatment consisting of the chalybeate and bark preparations. Ferrum dialysatum is very good given in fifteen drop doses three times a day, after meals. Upon this course he made a good recovery, and has had no trouble with his eyes since.

CASE II.—CHRONIC GRANULAR EYELIDS.

Clave Jones, æt. 33, German. Has been troubled with sore eyes for twelve years. Does not know any particular cause, but thinks it came from exposure during a rainy season. The trouble began as an ordinary "cold in the eyes." At first there was considerable redness and the eyes would weep freely when exposed to sunlight. This however, passed off to a great extent in a few days, so that he did not consider it necessary to have them treated. He expected, that as they had improved so much during the first few days, that they would continue and be well in a short time. But there remained a small amount of matter at the corner of the lids. At first this was not larger in size than a pin's head, but in the course of a few weeks it increased to twice and three times that amount. His eyes, up to this time, had not pained him, but now they felt as if there was fine sand or grit under the lids. This was noticed first of morning's and would disappear as soon as he bathed them in cold water, and would feel first-rate the rest of the day. The next morning however they would be in the same condition, until after the cold water had been used. If he was in the wind they would feel weak, and the tears would gather so fast that it affected his vision. After awhile the light began to be painful, and he had to use eye-goggles. This last resort appeared to ease them for awhile, but he soon found that his sight was failing. The scratching sensation under the lids was present during the entire day. When he kept his eyes closed and perfectly at rest he did not notice it. He used different kinds of eye lotions and was prescribed for by a number of physicians but received only temporary benefit. For the past three years he has done nothing for them, and had given up all hopes of the right eye.

The conjunctivæ of the lids were reddened and inflamed and presented a velvety appearance, in some places it was tendinous. The cornea of the right eye looked like a nebulous mass streaked with bloodvessels. There were a number of ulcers on the cornea. Light was very painful. Vision was very poor in this eye as he could only count fingers at a distance of six inches. Vision in the left eye was $\frac{10}{100}$. The lids were not contracted, and there did not appear to be any undue pressure upon the globe. The operation of syndectomy had been performed upon the right eye with no apparent benefit.

The treatment in this case was both constitutional and local. The first, and I think as important in this case as the second, consisted of the following:

℞	Quin. sulph.,	gr. ss.	
	Ferri redact,	gr. j.	
	Ext. tarax.,	gr. ss.	
	Pic. liq.,	gr. j.	M.

Ft. pill.—Sig.: one after meals.

The local treatment consisted in the use of atropine and the mild astringents. The eyes were protected from the light with a shade. As he was a great smoker he was advised to indulge as little as possible, and to have the eyes well protected at such times. Smoke being an irritant is injurious to an inflamed eye. Atropine was used daily. Bathing the eyes in a solution of sulphate of zinc is very good in some cases and had a very good effect in this one. Under this treatment the eyes made a good recovery. Caustics were not used in any manner, as he had been through one or two courses of such treatment. He stated that one physician to whom he applied, used a solution that felt like live fire coals in the eye, the pain produced being almost intolerable.

CASE III.—PURULENT CONJUNCTIVITIS.

Walter Paten, æt. 14 days. In this case there was great swelling and puffiness of the lids, so much so that the eyes could not be examined until after the inflammation had been reduced. There was a very free secretion of pus, and the conjunctiva was extremely sensitive When the swelling had been sufficiently reduced there was found an ulcer, on the external inferior portion of the right cornea, about one and a half lines in diameter. After the eyes had recovered under treatment, a convergent alternating squint was developed. This condition passed away in the course of a few weeks. Otherwise it would have been necessary to correct it with an operation. In the case of a person so young the operation would have to be postponed for a few years, and as the squint was alternating, the sight in both eyes would be apt to remain good.

CASE IV.—ULCERATION OF CORNEA.

Maggie Mitchell, æt. 6 years. Had small-pox twelve months ago. One of the pustules made its appearance on the cornea of the right eye, involving over half of the central portion of that membrane, and extended to the internal margin. Light was so painful that she could not open the eye, where there was sufficient light to examine it. The left eye was sympathetically affected. The deepest portion of the ulcer occupied the center of the cornea, and extended down through the major portion of the fundamental substance of that organ. The treatment consisted principally of the bandage and atropine. After the intolerance of light had disappeared, and the ulcerated portions healed up, the opacity or pearl as it is sometimes called, was so dense that the pupil could not be seen through it. Irritants were not used, and the opacity disappeared very rapidly. In a short time the pupil was visible through the center of the cornea, and the densest portion was not as opaque as the thinnest part was at first. The most remarkable point was the rapid disappearance of the intense intolerance of light, after treatment was instituted.

CASE V.—GRANULATED EYE-LIDS WITH CROSS-EYES.

America McCoullough, æt. 10 years. Had been a healthy child until six years old. At that age she had an attack of typhoid fever. Convalescence was slow, and she remained in delicate health for some time. After she had recovered from this she had an attack of granulated eye-lids. The eyes were very weak and irritable. In a short time after this the right eye began to turn inward to a considerable extent.

This condition of affairs lasted for nearly four years, and the parents thought without being any worse. An examination proved different. With the left eye she read number four of Snellen's test-types at a distance of six inches. With a normal eye it can be read at forty eight inches.

With the right eye she could only count fingers at six inches. She was treated for two weeks for the granulations and then the right eye operated on. As the convergence was so great, a single operation did not overcome it, and two weeks later the left eye was operated upon. Two weeks after the first operation she could count fingers at twelve feet with the right eye. Two weeks after the second operation she could recognize her friends at a distance of fifteen paces. The treatment of the lids was discontinued for a few days at each operation. After the effects of the second operation had passed off, the treatment had a better effect upon the lids, and the inflammation disappeared rapidly. The father and mother of the child were both troubled with granulated eye lids, and she had a brother who began to squint when he was seven years old.

CASE VI.—FOREIGN BODY IN CORNEA.

John Cladon, æt, 45 years. Machinist. While working at the lathe, a piece of iron filing was chipped off, and struck him in the left eye. Severe pain was produced which passed off in a short time. His fellow workmen examined his eye, but could not see anything. He complained of a scratching under the upper lid. They turned the lid and rubbed it, which only irritated the eye. He rubbed the lids with his hand a great deal which only made the irritation and inflammation worse. When he presented himself for examination, the eye was very red, and light was painful.

The tears were secreted very freely and ran down over his cheek. In the central portion of the cornea, corresponding with the lower border of the pupil was a brownish black spot, showing the location of the iron filing. It had penetrated about half way through the cornea, leaving a little corner sticking out which scratched and irritated the lid whenever the later was passed over it. The foreign particle was removed by means of the spud and the eye afterward bathed in cold water. A four grain solution of atrop. sulph. was used and later ext. physostig. After this he had no more trouble, and went about his work as usual.

CASE VII.—FOREIGN BODY IN CORNEA.

Peter Studen, æt, 23 years. This case was similar to the one above. He was not aware that he had any thing in his eye, but for four days the left eye had been so irritable that he could not use it, and when he would step out of the house into the air, tears would be secreted so freely that he could not see for a little while. Light was very painful, and he had an unpleasant scratching sensation under the upper lid. The particle was imbedded in the lower portion of the cornea and a little internal to the central line. It was removed with a spud, and treated the same as the preceeding case. One thing was noticed in these cases, both patients thought that the trouble was located in or near the internal corner of the eye. and made the remark that "they thought the trouble was in the corner of the eye."

Art. II. – On the Pathology of Acute Rheumatism.

Read at the January Session of the Muskingum County Medical Society
Zanesville, Ohio 1878,

By J. R. LARZELERE, M. D.

Mr. President and Members.—In compliance with your request, and in discharge of a duty assigned me at the last meeting, I now have the pleasure of reading to you the best efforts which the brief powers of my time and ability could command:

To the novice who contemplates a production on the pathology of acute rheumatism, to be read in the presence of so learned a body as this, I infer, he would first very sensibly feel the importance of consulting the already written literature on the subject, after which, not finding any definite or semi-definite conclusions thereon, he would be impressed with a faint sensation as though a vacuum was about to form within his intra-cranial structures, and in credit to his tentative labors he would feel the pressing necessity of utilizing all the given elements of potential energy which was within his human economy. Learned and eminent physicians have added to the medical literature in avoirdupois, tons of manuscript on the pathology of rheumatism, and if the student of the present day can glean any definite teachings therefrom, he happily is the possessor of a more acute sense of perceptive digestion than has your humble writer.

The teachings on the subject vividly bring to my mind the ever ready knowledge of a member of the old "Muskingum County Medical Society," who on all occasions was ever voluble in speech; his colloquial powers once put in motion on any given medical subject, would impress the auditory sense of his hearers with an apparent show of scholarly attainment, but when an effort was made to digest his sentences and utilize them for the better understanding of the topic in question, you are mortified to learn that all your mental efforts were disseminated in groping with shadows. A little transposition will make Pope read thus:

"The man with apparent wisdom's medical science renowned,
With long speeches, experienced in old Esculapian sonnets."

The paramount reason why rheumatic pathology is so dark to our comprehension has been mainly attributable to the imperfect teachings of the physiologists. Just so soon as the latter are enabled to teach the facts which occur within the normal economy, *pari passu*, will our knowledge approximate a science in pathology. The phenomena incident to the latter are a true index of the modification of the former, physiologists must first teach the facts which the several organs of the economy normally perform, before the student can expect to acquire a definite knowledge of pathology.

Some sage and astute members of the society very seriously question the facts, (as I maintain), that the physician can only obtain a true knowledge of pathology in and through the perfected teachings of physiology. I hope they will not credit me with temerity if I should counter-question the truth of their opinion, and with becoming deference, affirm that in this and no other way can the medical man arrive at a true knowledge of rheumatic pathology, and not only so of this affection but of all other so called diseases.

Logicians inform us it is of the vastest importance to stake out true premises, that our conclusions may prove incontestible. How many conditions in life is it of major interest to know the facts relative to the many objects which surround us? As a simple, yet striking illustration, pray inform me how you can unerringly designate the true impress of the Government dies upon a piece of paper which is denominated a "greenback" from a counterfeit, (a pathological one), unless you first have a perfect knowledge of the former, (a physiological impress). A correct knowledge of the first pre-supposes a definite ability to arrive at the fact or facts in the latter. What would you think of a semi-informed clinical physician assuming to teach and correctly diagnose the several ailments of the body, who only had acquired a superficial knowledge of its complex structures and functions? I unhesitatingly aver his teachings and diagnosis could not be relied upon. An accurate knowledge of the latter insures a near proximity to a clear comprehension of the existing facts in pathology. The pathological phenomena which are apparent to our objective senses, and which we call disease, are nothing more or nothing less than the results of the modificatians of the physiology of the organs of the human economy, and he who best comprehends the normal dynamics of the body has acquired the ability which will most certainly enable him to arrive at the facts in the abnormal states.

I am catalogued with those who believe that a knowledge of healthy life pre-supposes a knowledge of diseased life. To affirm that you studied physiology five, ten or fifteen years ago, since which you have not paid much attention to the subject, is to confess your present knowledge of this branch of medicine far below what it should be. The present teachings of physiologists, compared with that of the above periods of the past, is analogous to the ability of a ten year old school-boy, in comparison to the efforts of a master mind of the present day.

I will endeavor to show that the pathology of acute rheumatism in the initial stage is neurotic, and that the phenomena which are witnessed by physicians, are but results of a pre-evolution of abnormal nerve cell dynamics. In brief, modern physiology teaches that the the nerve centres are the master wheels of the economy, and in and through them originate, or is incubated, the primary force which moves and controls the normal standard of all other structures of the body, more manifestly that of the muscular, both striated and non-striated. The vascular system is even guarded by and through these centrifugal points. An excitant which disturbs even for a brief period of time the harmonious workings of these central parts of the nervous system is followed almost immediately by a manifest change in the calibre of the blood-vessels, either dilatation or contraction, especially is this modification apparent to some one or more organs of our special sense in those parts of the vascular system known as the arterioles and capillaries.

There is ever resident in the nerve centers a potential force which on being awakened by the presence of sensory impulses conducted through the afferent nerve channels, which are transmitted into active force or dynamics, and is reflexed by way of the motor nerve channels and demonstrated to us in the phenomena of muscular contraction or some other form of motion. The important fact is that by means of these nerve centres afferent impulses may exalt or depress arterial tone, which important function may be brought to bear either on the whole vascular system, or on particular parts of the vascular area. This indeed is the very essence of its usefulness.

That this is the true function of the nerve centres and channels, is further demonstrated by certain medicinal agents, (in lethal doses), which convey their action directly upon the nerve centres and increase their reflex power; among these are strychnia, picrotoxin, nicotin, veratrine and cicutine, and certain pathological products of the organism, as in sceptic affections (scepticemia) uremia, severe icterus. On the other hand reflex power is diminished by anemia, hydrocyanic acid, bromide of potassium, atropia, etc. Other phenomena which often occur in the upper part of the body, viz: blushing and palor, red anger and white anger, all of which can not otherwise be accounted for, save in and through the direct communication of the vaso-motor nerve centres and nerves upon the superficial vascular system, and were the evanescent phenomena to continue sufficiently long a pathological condition would ensue.

In the one case there exists vascular dilatation, and in the other vascular contraction. No other modification of function, save that of the vaso-motor centres, can possibly account for the vascular phenomena.

Of all the causes which develop acute rheumatism, both intrinsic and extrinsic, probably none are more efficient than cold. A reduction of temperature concomitant with humidity of the surrounding temperature, has much to do with the normal function of the peripheric sentient surface, such may either depress or quicken the sensory impulse, hence retard or accelerate afferent conduction, thus depriving the nerve centres of their normal sensory stimuli, which will either retard or quicken the dynamics therin; hence corresponding efferent conduction, finally the genesis of nerve-cell force is inadequate to hold the vascular system in normal tone. Out of these primary effects must inevitably arise secondary effects.

If the quantity of blood put into circulation is constant, the surplus passing through the dilated area must be taken away from the rest of the circulation. Therefore, the fullness of the dilated area will lead to an emptying of the other areas. This is obvious when the dilated area is a capacious one. The normal equilibrium which exists between the intra-vascular blood and the extra-vascular tissue is overthrown, which conditions ever present the phenomena known as inflammation.

I conceive acute rheumatism to be an inflammatory process, and that the physical modifications can take place in no other way, than in and through the structures which I have so briefly indicated. The phenomena induced simply mean that the cappillaries and arterioles become more and more crowded with corpuscles, the onward movement of the blood current grows slower and slower, until at last it gives place to stasis.

In fact, the arterioles and capillaries become choked with corpuscles, and consequently marked pathological phenomena ensue, mainly in the symptoms of pain, increased temperature, swelling, etc., just such results as will occur on the modification of the physiological laws which govern living matter. If a part of the body, (the hand), be immersed for but a brief period in cold water, or any other cold medium, the corresponding member will indicate a reduction of temperature and diminished dermic vascularity.

How are these changes to be accounted for, are interesting questions to the physician. I assign the following as the only understandable premises by which to arrive at a reasonable conclusion of the demonstrated facts:

The cold water or other medium enveloping the hand imparts increased excitations to the extreme filaments of the sensory nerves, which calls forth corresponding increased sensory impulses and accelerated afferent conduction to the vaso nerve centres, and therein quickening nerve cell explosion and augmentation of efferent or reflex force to the opposite member of the body, which is then mainly spent upon the dermic and sub-dermic non-striated fibres of the arterioles and capillaries, and eventuating in the contraction thereof. The phenomena of which demonstrates a less amount of blood within a given vascular area and consequent modification of function, as evinced by the vascular contraction and reduction of temperature.

Such are the primary changes and effects of the first stage of a cold medium upon the normal economy.

Secondly, if the cold bath or other medium be continued sufficiently long, anæsthesia follows.

Thirdly, if still further prolonged, death of the parts ensue. The normal transformations of the fluid elements into higher grades of tissue are completely arrested. In the latter, (death), there exists a total suspension of the chemical mutations and physical conditions for the further consumption of oxygen and evolution of carbonic acid. In a consanguineous sense, physiology and pathology stand near akin; the present teachings of the former are approximating a point which will and is opening the eyes of the hitherto indifferent investigator.

The special functions of the central nerve cells can only profitably be studied in connection with the sensory organs, the cells of which are eminently sensitive, while the cells of the nerve centres and ganglia are eminently automatic and reflex. A correct knowledge of the functions of which qualify the physician to trace the modified cell dynamics from the point or points of genesis, thence upon a given area of the body which presents the phenomena of rheumatism, or other inflammatory affections.

In acute hyperemia the vascular system is always found in a state of dilatation, the vessels are elongated and tortuous, for the obvious reason that their physiological dimensions are subject to the influence of the reflex nerve centres, which from some cause fail to evolve sufficient nerve cell force to maintain normal vascular tension, hence pathological phenomena, or modified physiology, physical modifications of function with life structures.

In acute rheumatism there exists hyperinosis which is ever secondary, and not at all the cause of the state of fever or inflammation. Causes always ante-date phenomena. The primary changes essential to inflammation, are first, modified sensory function; second, modified nerve centre and reflex function; third, modified vascular function; fourth, objective phenomena, which indicates the ultimate pathology, and can be equally observed by the laity as well as the physician. If the latter can see no farther than objective phenomena, we pray the *Good Lord* to have much beneficence for his (such physician's) patients.

With the nervous system in the due performance of normal functions it is almost impossible for inflammatory symptoms to occur in the human economy, except as the result of truamatic causes. Rheumatic pathology is the sequence of certain physical laws which antagonize or modify certain physiological laws of the human economy. In the modern view, rheumatic pathology does not impress our subjective sense with that mysterious extrinsic or entrinsic entity in active antagonism with the molecules of living matter—not at all alike unto the irascible inconoclast in the studio of the sculptor.

A passing reference in recognition of the mental ability of one of the senior members of the Society, Dr. Z. C. McElroy, who for the past decade has labored in season and out of season, and if in the future he should not evolve from his brain any fact or facts which will stand the test of time, still may he be conscious, and it affords me pleasure to assure him that he has already taught one important fact in medical science, which the lethal shafts of his adversaries can not batter down: "That function is the expression of structures." This is a fact in medical science, as true as that the Great God created the Universe.

Neuro-pathology is not a new teaching. Years ago astute thinkers and able writers ventured to look upon the nerve centres and ganglia as having much to do, if they were not the prime movers in the initial steps to inflammatory phenomena. But the adversaries of neuro-pathology contended that no such condition could possibly exist, for the reason that autopsies did not demonstrate neurotic lesion. The contending parties seemed to have lost sight of the facts, that objective neurotic lesion, is inevitable local or somatic death. I mean lesions of the great nerve centres and ganglia. Whenever the nerve centres and ganglia loose the function of nerve cell genesis, death ensues.

In conclusion, if the members of the Society will please remember that the phenomenon of rheumatic inflammation are but the insidious and true expression of modified nerve cell genesis and reflection, then will you not be at so great a loss as heretofore, to comprehend the physical mutations which present to each and every one in the pathology of acute rheumatism.

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Selection.—Sanitary Rhymes.—The Skin.

By SIR ALFRED POWER,
Vice President of the Local Government Board of Ireland.

There's a skin without, and a skin within,
A covering skin and a lining skin;
But the skin within is the skin without
Doubled inwards, and carried completely throughout.

The palate, the nostrils, the windpipe, and throat,
Are all of them lined with this inner coat;

Which through every part is made to extend,
Lungs, liver, and bowels, from end to end.

The outside skin is a marvellous plan
For exuding the dregs of the flesh of man;
While the inner extracts from the food and air,
What is needed the waste in his flesh to repair.

While it goes well with the outside skin,
You may feel pretty sure all's right within;
For if anything puts the inner skin out
Of order, it troubles the skin without.

The Doctor, you know, examines your tongue
To see if your stomach or bowels are wrong;
If he feels that your hand is hot and dry,
He is able to tell you the reason why.

Too much brandy, whisky, or gin
Is apt to disorder the skin within;
While, if dirty or dry, the skin without
Refuses to let the sweat come out.

Good people all! have a care of your skin,
Both that without and that within;
To the first you'll give plenty of water and soap,
To the last little else besides water, we'll hope.

But always be very particular where
You get your water, your food, and your air;
For if these be tainted, or rendered impure,
It will have its effect on the blood—be sure.

The food which will ever for you be the best
Is that you like most, and can soonest digest.
All unripe fruit and decaying flesh
Beware of, and fish that is not very fresh.

Your water, transparent and pure as you think it,
Had better be filtered and boiled 'ere you drink it,
Unless you know surely that nothing unsound
Can be got to it over or under the ground.

But of all things the most I would have you beware—
Of breathing the poison of *once breathed* air;
When in bed, whether out or at home you be,
Always open your window, and let it go free.

With clothing and exercise keep yourself warm,
And change your clothes quickly if drenched in a storm;
For a cold caught by chilling the outside skin
Flies at once to the delicate lining within.

All of you who thus kindly take care of the skin,
And attend to its wants without and within,
Need never of cholera feel any fears,
And your skin may last you a hundred years.

Correspondence.

A "Rebutter" to Dr. Haldemans "Rejoiner."

By CHAS. C. HILDRETH, M. D. *ZANESVILLE*, O.

In reply to Dr. Haldeman's "Rejoinder" published in your December number I have only to say Mr. Editor, that as my friend H.— thinks my first reply a very "puerile effort" diagnosis correct. But then, what more should he expect in reply to an article so infantile in its innocency. Why! Mr. Editor, but for my excessive modesty, (it runs in the family,) I could demonstrate to your readers, that the greatest discovery of the age; a discovery which places the name of Haldeman beside that of the immortal Jenner, would have been utterly lost to science, but for my complimentary allusion to it in your October number. Knowing this to be case, why speak hereafter of, "Republic's being ungrateful." The discovery to which I allude, you will remember, was this: That with a case of small-pox in the house, and the family unprotected, it is safest and best, after the third day, not to vaccinate, but to put the whole family on a diet of "Brimstone and Molasses," "mush and milk," etc., and let them take their chances. He has tried the practice, and certifies to its success. It is a matter of history, that great discoveries are seldom appreciated by contemporaries. Future ages will no doubt bind the laurels where they justly belong. Again Mr. Editor, I have the pleasure of announcing another important discovery by my friend Haldeman, which we will style medico theological. We have all read of the miraculous power of Christ and St. Luke, in healing the sick, opening the eyes of the blind, etc., thus proving them to be the greatest of all great physicians, but it remains for my friend Haldeman to have discovered, that they were both M. D.'s, regular graduates, you know, else why the title? I must confess, Mr. Editor, that the names Jesus Christ, M. D., and St. Luke, M. D., when seen in print for the first time in my friend's article, struck me as looking very singular, to say the least of it; but then, there can not be a shadow of doubt that my clerical friend knows precisely what he is writing about. Here, is another great discovery of which I trust the "brethren of the cloth" 'will give him credit.

There are so many fine points, and knotty problems in theology, which my learned friend could elucidate, that I think it would be a popular move, on your part, to set apart a certain portion of your journal, and get my friend Haldeman to edit it. You are well aware Mr. Editor, that the "outside barbarian" world, has not the most exalted opinion of the exemplary piety, and reverence for things sacred, of the medical profession. They accuse us you know, of being an unbelieving, doubting, skeptical set of reprobates, that will never be satisfied of the truth of any proposition, unless the facts furnish the demonstration.

They say we believe, that if truly appreciated, and understood, we have no evidence that the laws of nature are ever violated: and hence, our lack of faith in the supernatural. Still worse, Mr. Editor, it has been charged that the rapid advance in natural science, is making the savants in the profession still more skeptical. For instance, it has been asserted that you can not now find a scientific geological doctor, who believes this world was made in six days, out of nothing; nor can you find a scientific astronomical doctor who believes that old Joshua ever stopped the revolutions of any of the heavenly bodies "by word of command;" nor can you find a doctor skilled in ichthyology who believes that "fish story" about Jonah, etc., etc., Now here, is evidence of want of faith which is perfectly alarming to good Christians.

You know very well Mr. Editor, that we may divide doctors into three classes, morally: First. Those "miserable sinners" who will neither go to church, nor read pious books, and hence, have no more respect for "antiquated authority," than Col. Ingersol has for "Revelations." Second. Those transparent hypocrites who "profess religion," pray loud and long, and go to church only on the pious dodge to get business. Third. The very few, good, honest christians, who believe, and practice precisely what they preach. And now, Mr. Editor, (as a Frenchman would say,) "let us return to our mutton." In regard to the subjects of small-pox and vaccination, I have nothing further to say. If any one has the least curiosity to learn my sentiments on those subjects, he will find them in full detail, in the October number of this journal. The simple truth is, that the profession cares not a fig for the opinions of either of us, on the small-pox question; and that this controversy should never have been heard of, outside the walls of the Academy in which it originated. In conclusion, allow me to thank my clerical friend, for the "splendid advertisement" he has given me, as being one of those "secular doctors," up to his eyes, in business of various kinds. Now if the gentleman supposes, that *business energy, and capacity, in any profession* is likely to make a man less useful in a community, or less popular with the masses, he has little common sense and less knowledge of human nature. Mr. Editor, I am through: as a lawyer would say, "we rest."

[We regret that our friends Hildreth and Haldeman should have permitted their controversy to become personal in character, and as the profession has no interest in the special opinion they have of each others mode of practice, we feel obliged to say: Hold, enough, our pages are full].

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Bi-Monthly Abstract.

Current Contributions to Obstetrics, Gynecology and Diseases of Children.

Condensed by **Edward B. Stevens**, M. D., Lebanon, Ohio.

Transfusion Successfully Performed in a Child. — At the stated meeting of the Philadelphia Obstetrical Society, Feb. 1, Dr. A. H. Smith presented for Dr. Stokes, of Moorestown, N. J., the history of a case of transfusion in a boy nine years of age. The patient was suffering from an attack of typhoid fever, which ran the ordinary course until the middle of the third week. He then began to bleed freely from the nose and gums and to pass blood with his urine. The flow from the nose and gums was stopped by Monsel's Solution, but would break out afresh on the slightest provocation. Every passage of urine contained, as nearly as could be judged, from two to five ounces of blood. Numerous petechial spots, varying in size from a silver dime to half a dollar, appeared on the skin. Despite the use of iron, alum, and gallic acid, the hemorrhage continued unabatedly for seven days, when transfusion was determined upon. Two and a half ounces of the father's blood were injected into the median vein of the right arm. The oozing from the nose and gums stopped almost immediately after the operation, and urine passed half an hour afterwards contained neither blood nor albumen. On the second day after the operation the patient was exceedingly prostrated, and there was some bleeding at the nose, which however was readily checked by a spray of equal parts of Monsel's Solution and water. The improvement was subsequently rapid, and in three weeks, the patient was able to go down stairs.

The influence of the operation on the hemorrhages in this case cannot be denied. It is an important point however, that the urine which was passed half an hour after the operation, and which contained neither blood nor albumen, had been collecting in the bladder for two hours before the operation. The fact that the blood was defibrinated, is of interest in view of the opinion of Lesser (*Boston Med. Journal*, June 1866), that the transfusion of defibrinated blood has no influence in arresting transudation from bleeding surfaces, but is only useful in restoring the nutritive fluid when the drain has been stopped.—*American Journal of Obstetrics.*

THE TREATMENT OF SCARLET FEVER.—From a report of a discussion in the *N. Y. Academy of Medicine*—the following practical points are selected. Dr. J. Lewis Smith remarked: First, in reference to the *nervous complications*; the earlier and milder eclampsia was not usually serious, but the protracted and later eclampsia was exceedingly grave. There was a predominance of of blood-poisoning as a factor in causing complication however early it might appear, but in the early cases it was rarely fatal. Eclampsia occurring in the later stages was usually fatal, and was dependant on the scarlatinal poison. It had been observed that eclampsia occurring in scarlet fever, always proved fatal, except when occurring before or just in the beginning of the eruptive stage, but Dr. Smith was of the opinion that by the combined use of the bromides and chloral, occasional cases of eclampsia occurring at a later period had been saved. By far the larger proportion, however, of cases with this complication perished, except when it occurred at the initial stage of the disease.

With regard to the throat complication, he said there had been very much less of that in New York during the last five or six years than prior to that date, and it was explained by the use of the local disinfectant treatment. Formerly the sore throat of scarlet fever had been treated largely by means of external applications, but since the internal treatment, by means of antiseptic and disinfectant applications had been employed, the cervical cellulitis had been very much less than formerly. Allusion was made to the fact that the type of the disease might change. Scarlet fever changed its type the most frequently of any disease, and diptheria came next in order. It had been the case that the mortality from scarlet fever, had been very much less, late years, than formerly, and it might be, that it was because the type of the disease had changed, rather than due to any improved method of treatment.

In detailing the various complications which may occur, Dr.

Smith said nephritis was commonly regarded as a sequel to scarlatina, but he was inclined to regard the kidney disease as a complication, and one of earlier occurrence than physicians usually believed. It was thought that if the urine was examined at each visit, it would be found that albumen was present before the eruption had faded away. Physicians, generally were not in the habit of examining the urine until other symptoms of nephritis, as anasarca, etc., were developed; hence it was believed that it was a complication of more frequent occurrence than is usually supposed.

Dr. Wm. H. Thompson, spoke of the general treatment of scarlet fever. He was very much impressed in favor of the chlorine treatment, in consequence of his experience in the treatment of scarlet fever for a period of two years, when in charge of patients at Quarantine. In exceptional cases he employed the carbonate of ammonia, and it was thought with noted benefit. For instance there were certain cases in which there was marked tension of the pulse; the tension, perhaps, within the first two or three hours being as high as is found in Bright's disease of the kidney, or in gout. Marked tension of the pulse was regarded as characteristic of scarlet alone among the eruptive fevers, and was sufficient of itself to excite suspicion regarding the presence of the disease. When that condition was markedly developed, it was believed that there was a greater liability to hemorrhages occurring in the skin, in the viscera, perhaps in the serous membranes, and perhaps in the substance of the heart itself. There was a tendency to the production of minute emboli and thromboses of the veins, and it was possible that the carbonate of ammonia might prevent hyperinosis of the blood with especial tendency to deposits of fibrin. But the chlorine treatment had so much the advantage in the statistics over the other plans adopted, that he had continued to employ it up to a certain date hereafter to be mentioned.

The treatment consisted in the administration of grs. lxxx. of chlorate of potash, and ʒij. of the dilute mur. acid every twenty-four hours largely diluted with water. Lymphatic enlargements complicated but very few cases under that treatment.

Since, he had somewhat modified the plan by the substitution of bromine for chlorine. The reason for the substitution was because bromine belonged to the same class of antiseptics and disinfectants as chlorine and was more powerful.

The carbolic acid group, salicylic acid, etc., all being closely allied were disinfectants, but were to be chosen in the suppurative inflammation to prevent decomposition of pus, whether the suppurative inflammation was internal or external.

Probably in the majority of cases of death from scarlet fever, death was due to true septicæmia, rather than to poisoning by the specific agent of the disease. Bromine being far more powerful as an antiseptic than chlorine, was used both locally and internally in the treatment of diphtheria. Although the doctor had not much reason to think that the chlorine treatment was not as successful as possible perhaps in the treatment of scarlet fever, yet he had of late relied upon the use of bromine. Since he had adopted its use he had not seen cases of lymphangitis, and there was a full concurrence in the remarks of Dr. Smith, to the effect that the throat complication, the swelling of the glands about the neck, etc., had been much less frequent since the internal as well as the external use of antiseptics.

The manner of using the bromine was as follows: Dr. J. Lawrence Smith's solution was employed, consisting first of a saturated solution of bromide of potassium in water ℥ij, to that ℥i. of bromine was added very slowly, shaking the water constantly while making the combination. It was better to add half of the bromine first, and then let the bottle stand for half an hour or more before the remainder was added. When the bromine was dissolved in that manner, the bottle was to be filled with water until a *four ounce* mixture was made. The solution thus prepared could be again prepared for administration by combining it with water in any proportion desired.

For internal administration ʒi. of the solution to ℥i. of water was used, and of that a teaspoonful was given in a tablespoonful of sweetened water p. r. n. The solution should be kept in a dark place. As a local application, equal parts of the solution and glycerine could be employed, or in serious cases, the solution could be applied clear. The odor of diphtheria was entirely destroyed by the bromine solution.

With sudden onsets of the disease and a temperature rising rapidly to 104°—105 or 106°—wrap the child in warm blankets and apply douche to the head. Also when the temperature reached 104° the cold, wet pack was recommended with the statement that he had never seen any harm follow its use.

The cold bath was not recommended; the cold wet pack was believed to be all that was necessary. Take a sheet, wring it from water at the ordinary temperature, wrap the child in it, and over that lay one wrung from ice water. The prompt manner in which patients had improved under such management had led him to regard the wet pack as one of the great therapeutic resources for that class of cases.

From the very commencement of the disease the body should be oiled over three times a day. One reason was because it was the most effectual means of relieving the itching of the skin and the excessive restlessness of the patient. Another reason was because it was truly antipyretic — it reduced the temperature. Another reason was because of the close sympathy existing between the skin and kidneys; the oiling kept the glands of the skin in an active condition.—*N. Y. Med. Record.*

DR. HODGE'S ABORTIONS.—It is not an unusual thing in most fields of inquiry for the inventor to resurrect some discarded idea of the past as new and wonderful. Dr. Simpson illustrates this incidentally in his report of his visit to America at the International Medical Congress of 1876, thus—"he had seen a sight which was of itself reward enough for having crossed the Atlantic. That was a collection of what Hodge used familiarly to call his "abortions." All fellows of this society had at times, and some of them many times, made use of Hodge's pessary. But for himself it was not until he saw that collection in Philadelphia that he realized how much time and thought her great obstetrician had expended, ere he discovered the apparently so simple and so widely useful lever pessary. For a long time the material of which Hodge had his pessaries made was silver gilt; and at one time during the American war, when the precious metals were scarce, the greater number of the obsolete forms were sent to the mint and turned into coin. A sufficient number had been retained, however, to show the many various phases of evolution through which the pessary had passed; and often when some supposed new and improved modification of his instrument would be sent to him, with a different curve or crook, or crutch adapted to it, he would pass it to his son with the quiet remark, "Here's another of our abortions."—*Obstet. Journal of Great Britain and Ireland.*

TREATMENT OF PROLAPSUS ANI IN INFANTS.—Dr. P. Jamieson considers prolapsus ani in very young infants a fairly manageable ailment, though troublesome to treat, inasmuch as its recurrence may be expected at each act of defecation. Should however a young mother or inexperienced nurse fail to recognize the importance of the affection, and allow the intestine to remain prolapsed for any considerable time, the case assumes much graver proportions, a large amount of gut becomes implicated, and the surgeon experiences great difficulty in maintaining the reduction when he has succeeded in effecting it.

The expedient which I adopted in the following case may be thought worthy of record.

I was informed that a protrusion of the bowel to the extent of two inches had existed for three weeks; during that time the mother assured me the protrusion had only been "up" twice, and each time for five minutes. Three days before I was called the prolapsus had increased, and when I saw it the protrusion measured four inches; was curved and conical, and of a rich color. The child was a female fifteen weeks old, well nourished, but its appearance was pitiable to behold. The free margins of the eyelids were red with weeping, the conjunctivæ were bleared and injected while the irides were clear and bright. The tenesmus was almost constant.

The child had been reared on a bottle, and whenever the teat was offered it hastily and greedily, seized it, and sucked as if ravenous with hunger, then suddenly and rapidly did it fling, as it were the teat from the mouth, and burst into a cry that told full surely the terrible agony it was enduring.

Healthy fæces were freely passed during my visit. On attempting to reduce the prolapse I was met with a resistance equal to several pounds in weight, but by watching the recession of the tenesmus I was enabled to effect complete reduction. No sooner was this accomplished than a stronger effort than ordinary on the part of the child flung out the bowel into its original position. Again I replaced the protrusion and applied firm pressure across the nates still unavailingly. The tenesmus overcame every barrier presented, and hurled out the bowel, which recurred to its abnormal position, like a compressed caoutchouc ball resuming its original shape.

On the next occasion I followed the inverted gut with my index finger within the inverted sphincter, and still finding vigorous pressure, I carried up my finger, until it was entirely within the rectum, the knuckles resting on the perineum, and the tip of the digit lying on the left iliac synchondrosis. Here I felt the finger tip grasped by the circular fibers of the bowel, and concluded I had reached the point of invagination. The idea then struck me, that if I could continue the use of this organic and sentient bougie long enough to permit the muscular fibres to contract *in situ* I might hope for the permanent reduction of the prolapse.

Instructing the mother what to do, I rapidly exchanged my finger for hers, and placing the infant on her knee, directed her to maintain the same position for four hours. This she faithfully did, and at the end of that time was rewarded by finding the tenesmus had completely abated, ond the bowel remained within the pelvis.

Previous to leaving the child I gave it six minims of liquor morph. hydrochlor., with instructions to the mother to repeat the dose every hour, so long as she felt much pressure on her finger, or if the infant cried bitterly. The mother subsequently informed me that the pressure in the course of half an hour almost ceased, and at the end of four hours her finger, she said slipped out.

During the succeeding twenty-four hours, the bowel protruded slightly five times, but the mother, on the alert promptly reduced it. This treatment thus maintained complete reduction of the invaginated portion of the gut; a position of safety not equally assured by the application of external pads.

When I saw the infant on the second day subsequent to the operation, the change of facial expression was very striking. The look of anguish had disappeared; the conjunctivæ were clear and limpid; and the child applied itself to its aliment easily and naturally. A frequent cry remained—the shrill, bitter scream due to tormina — the anguished wail which marked the agony produced by invagination and its accompanying tenesmus was gone.—*Obstet. Jour., Great Britain and Ireland.*

EPITHELIOMA OF CERVIX UTERI—OPERATION—DEATH.—Dr. Atthill presented a specimen to the Dublin Obstetrical Society with the following remarks: The patient from whom I removed this growth was sent to me from a remote part of the country, evidently fast sinking of hemorrhage, which proceeded from a huge mass of epithelioma projecting into the vagina. There could not have been a more unfavorable case. This specimen is now so shrunken that it does not represent more than a third of the mass which filled up the vagina. When she was admitted into the hospital the case was a hopeless one, still I thought it my duty to do something for her. On passing my finger up, I thought I detected tolerably healthy tissue above the growth which sprang from the lips of the os uteri, and I resolved to amputate the cervix—an operation which I have performed before with some success, at least to the extent of prolonging the patients' life a few weeks or months. This operation was difficult, because I could see nothing except the mass, and indeed could feel but little else, so completely did it fill the vagina. I succeeded however, in passing a wire beyond what I deemed to be the diseased tissues, and believed I had reached tolerably healthy structures, and in removing this mass without difficulty, but I then became aware that the wire of the écraseur had drawn in a fold of the vaginal wall, and that I had opened the cavity of the peritoneum. Under the circumstances, I thought it best to leave the patient alone, such cases not being necessarily fatal. After some time she rallied, and I thought she might survive for a time. There was no hemorrhage, but some occurred subsequently, and she died within forty-eight hours. The exact cause of her death was not evident, but I think she died of collapse. There are two lessons to be learned from this case. In writing on the subject of amputation of the cervix uteri, I have pointed out the possibility of the accident occurring, which has happened, namely: opening the peritoneum while using the écraseur. In this case a very remarkable condition existed which I never saw before— namely : that the cancerous mass grew upwards. It was in fact to a certain extent, mushroom shaped, and to this condition I attribute the accident. The second inference to be drawn from the present case is this:—That Marion Sim's operation is safer than amputation of the cervix. In Dr. Sims' operation we should have scooped all this mass away. I was deterred from that operation by the size of the mass, which was so enormous, that I did not think I could scoop it all away. In this I think I was mistaken, and am now satisfied that his operation is the safer one of the two, and that it would have been better to have removed all this mass with a scoop, and then dissected upwards. Neither operation, however, would have sufficed to save the patient's life, for in addition to this large diseased mass which was removed, Douglas's space was filled with cancerous matter. If I had not operated, the patient would have died within a fortnight ; but if I had not operated into the peritoneum, she might have lived a month or two. While therefore I regret the failure of the operation, and the unfortunate accident which resulted in the patient's death, still I look on the operation as justifiable; and while I take warning for the failure, I cannot say that I blame myself for the result.

THE PRESIDENT:—Had she peritonitis?

DR. ATTHILL:—No, she died from collapse. The opening of the peritoneum is not necessarily fatal.—*Obstet. Journal of Great Britain and Ireland.*

CHURCHILL'S TINCTURE OF IODINE. — *By Theophilus Parvin, M. D.* — Churchill's tincture of iodine is so valuable in uterine therapeutics, that it is to be regretted druggists are not more generally familiar with its preparation. It has happened to me within a few weeks to have two prescriptions for this tincture filled, in one case, with the ordinary tincture, in the other with the so-called colorless tincture. Even when an eminent teacher in a college of pharmacy was applied to by an Indianapolis druggist for the formula for Churchill's tincture, he gave one for a compound of iodine and chloral in alcohol, and also referred to the solution of iodine in glycerine advised by Thomas!

The following is Churchill's formula as given in the fifth edition of his Diseases of Women: he stated then, 1864, that he had been using it for twenty years:

℞ Iodin. pur.,	℥ iiss.
Iodid. potassi,	℥ ss.
Spt. rectificat.,	f ℥ xii.
Alcohol,	f ℥ iv. Solve.

After employing this tincture for thirteen years, I know no single agent in the local treatment of uterine disorders at all equal to it. It may be used as a stimulant, alterative, counter-irritant, caustic, and as a hemostatic, and for the purpose of exciting absorption of hypertrophied tissue. Its hemostatic properties are of especial utility in the treatment of hemorrhagic endometritis, and after the use of the curette or forceps in the removal of smaller intra-uterine growths, hypertrophies of the glandular and vascular elements of the lining membrane. — *American Practitioner.*

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Reviews and Notices.

Public Hygiene in America: Being the Centennial Discourse delivered before the International Medical Congress, Philadelphia, September 1876. By Henry I. Bowditch, M. D. Boston: Little, Brown & Co.

The first part of this "Discourse" embodies a very full historical account of the gradual evolution of the idea of State Preventive Medicine during the Centennial Period.

The writer divides the Centennial Period into three unequal epochs. The first epoch comprehends the first fifty-six years of the century, from 1776 to 1832; the second, from 1832 to 1869; the third epoch, from 1869 to the far Future.

Under the first head the author briefly glances at the doctrines of Bœrhave, Cullen, Hoffman, Brown, Darwin, and Benjamin Rush, showing that these distinguished men were the "medical system-makers," and believers in violent remedies, while they had but little faith in the vis-medicatrix natural. The author gives a brief sketch of Rush's life and theories, together with Brousaioism, and disposes of this period with the remark that, this epoch is characterized by a tyranny of egotistically proclaimed theory, unsustained by strict observation of fact.

The second epoch is characterized by the author as that of "observation." The history of this epoch opens with the numerical method of Louis; the opinions and influence of Andral, Chomel of France, and Dr. James Jackson, Jr., and Dr. Gerhard, of our own country, are fully presented. These writers, as shown by our author, were the chief reformers of this time; they demonstrated the fallacies of the preceding epoch, and pointed out more correctly the laws of disease, and the true influence of remedies, as well as Nature's power of curing disease. The influence of the writings of Drs. Forbes, Bigelow, and Elisha Bartlett, are dwelt upon at some length as illustrative of the gradual evolution of medical thought.

The third epoch which began in 1869, is characterized as that in which the medical profession is aided by the laity, and State preventitive medicine was inaugurated. The author states that "the laity first brought home fully to our minds the idea of *Preventive Medicine.*" Lemuel Shattuck, of Boston, and Edwin Chadwick, of London, are named as the first writers on preventive medicine. In this connection the writer proceeds to mention the names of Duchatelet, Quetelet, Petenkofer, Virchow, and Simon, as workers in the cause of State Preventive Medicine.

After naming and giving brief notices of the various associations, which have been organized for the study and advancement of sanitary scieuce, the author proceeds to exhibit in detail "the present status of State Preventive Medicine in the various States, Territories and Nation," as shown by analysis of answers to various questions submitted to correspondents in all parts of the country.

The amount of valuable information thus collected, is presented in the writer's well known clear and forcible style, and will prove interesting and valuable to the general reader, as well as medical men and students.

The work presents the exact status of Preventive Medicine in every State in the Union; also, a full digest of American Sanitary Law; the Sanitary Laws of each State; powers and authority of State and Municipal Boards of Health, &c., &c. The work is one of great value, and should be in the hands of every physician and student.

Handbook of the Practice of Medicine. — By M. Charteris, M. D., Professer of Practice of Medicine, Anderson's College, Glasgow; And Physician and Lecturer in Clinical Medicine, Glasgow Royal Infirmary. With Illustrations. Philadelphia: Lindsay and Blakiston. For Sale by Robert Clarke & Co. Price $2.00

The author of this work gives in a brief space aided by numerous illustrations, the information needed in daily practice. The illustrations (by our townsman Dr. T. J. Whittaker,) will aid greatly both in physical and chemical diagnosis.

Modern Medical Therapeutics: A Compendium of Recent Formulæ and Specific Therapeutical directions, from the practice of eminent contemporary physicians, American and Foreign. By George H. Napheys, A. M., M. D., etc. Fifth Edition, Enlarged and Revised. Philadelphia: D. G. Brinton, 115 South Seventh Street. 1 volume. 8vo. 600 pages. Price, mailed post-paid, to any address. Cloth $4.00, Full Leather $5.00.

A demand that calls for a new edition of a medical work almost every year, indicates a popularity with the profession that must be gratifying to both author and publisher. It is less than a year since the fourth edition of this work was issued. Its exhaustion in so short a time is the highest possible testimonial of its value to the practitioner of medicine.

Former editions of the work consisted of but one volume, but on account of increase of the amount of matter, it has been thought best to seperate the work into two independent volumes; this one on Medical Therapeutics and the other entitled,

Modern Surgical Therapeutics: A Compendium of Current Formulæ, Approved Dressings and Specific Methods for the treatment of Surgical Diseases and Injuries. By George H. Napheys, A. M., M. D., etc. Revised to the most recent date. Philadelphia: D. G. Brinton, 115 South Seventh Street. 1 vol. 8vo. 600 pages. Price, mailed to any address. Cloth $4.00, Leather $5.00.

This volume is unique in surgical literature, its chief purpose being to set forth the medical aspects of surgery, in doing which the author has gathered together and systematically arranged a great number of fundamental and therapeutic directions used by prominent surgeons, special attention being given to the uses and application of new remedies.

While the two volumes are independent of each other and relate to different subjects, they may very properly be styled as companion volumes, equally valuable to the general practitioner.

The Action of Medicines. By Isaac Ott, A. M., M. D. Philadelphia, 1878. A handsome work of over 160 pages written in a schollarly style. The book is dedicated to Dr. H. C. Wood. The work is divided into four sections. Part first treats of the "Physiological Action of Medicines;" part second, "Action on Nervous System;" part third, "Action on Circulatory Apparatus;" part fourth, "Action of Medicine."

The subjects discussed are numerous.

In his remarks on the physiological action of calabar bean and atropia the author has neglected to mention the name of Dr. Roberts Bartholow, of this city. This is a strange oversight, considering the fact that numerous other authors have been quoted.

We commend this work to all physicians who are desirous of poisoning guinea pigs, rabbits, pigeons, and frogs.

Physiological problem: If it takes a pound of belladonna to kill a rabbit, how many pounds will it take to kill a man? T. C. M.

The Elements of Therapeutics: A Clinical Guide to the Action of Medicines. — By Dr. C. Binz. Professor of Pharmacology in the University of Bonn. Translated from the Fifth German Edition, and edited with additions, in conformity with the British and American Pharmacopæias, by Edward T. Sparks, M. A., M. B., Oxon. Member of the Royal College of Physicians of London. Officer De Santæ (Alpes Maritimes), France. Formerly Radcliffe Travelling Fellow.

The desire to know how a medicine acts is just beginning to attract the attention it deserves. This work gives a clear description of the therapeutical action of medicines in a way that is sure to command attention and cause a more thorough investigation in this branch.

An Index of Diseases and their Treatment: By Thomas Hawkes Tanner, M. D., F. L. S. Second Edition. Revised by W. H. Broadbent, M. D., Fellow of the Royal College of Physicians, Physician to the London Fever Hospital, Physician to St. Mary's Hospital, and Lecturer on Medicine at St. Mary's Hospital Medical School. Philadelphia: Lindsay & Blakiston. For sale by Robert Clarke & Co. Price $3.00.

This carefully revised edition will commend itself, as it includes all new knowledge up to date on diagnosis and treatment. After carefully examining the contents, we find it just what every practitioner wants, as it has in a condensed form what is most desirable to know when in a hurry. We recommend it to all as a valuable addition to a library.

THE POPULAR SCIENTIFIC MONTHLY is one of the most valuable periodicals a physician can subscribe for. While it is not strictly a medical journal, its matter relates to the collateral sciences in which every man of progress takes an interest. It is published by D. Appleton & Co., New York.

Practical Gynecology: A Hand-Book of the Diseases of Women: By Heywood Smith, A. M., M. D., Oxon., Member of the Royal College of Physicians, Physician to the Hospital for Women, and to the British Lying-in Hospital. For sale by Robert Clarke & Co. Price 2.00.

This little work was much needed and will be appreciated by every medical man, as it comes up to what the author claims, "a book of reference, and gives at a glance the salient points of diagnosis and treatment with clearness and brevity." It will refresh the memory, and give all the new ideas without searching through all the text books—a very important consideration to all busy practitioners.

Transactions Indiana State Medical Society, 1877. An elegantly bound and printed volume of almost 200 pages, containing many valuable essays.

The Opening Address of S. S. Boyd, of Dublin, is very readable, being an admixture of sarcasm and good sense, with a dash of humor to season the whole.

The most interesting papers are those of John Chambers, of Indianapolis, on "Collar Fracture;" Wilson Hobbs, of Knightstown, on "Medical Witnesses;" J. W. Hervey, of Indianapolis, on "Medical Legislation;" L. L. Todd, of Indianapolis, on "Therapeutical Properties of Opium;" and R. E. Haughton, of Indianapolis, on "Dilatation and Contraction of Blood Vessels and Tubular Structures." The latter paper deserves especial commendation.

Indiana presents one of the best "State Society" contributions of the year just ended. T. C. M.

DIALYSED IRON in arsenical poisoning. Arsenical poisoning has been treated successfully by the use of dialysed iron, by Dr. T. B. Reed, of Philadelphia. A lady fond of gum-drops ate them for about an hour, taking them from a pocket in which was a package of arsenious acid, that had been bought as a poison for rats. The wrapper having become broken, the arsenic was very completely dusted over all the gum-drops, and a good dose of the poison was ingested. Symptoms of poisoning came on, and the physician was summoned. The relief afforded by the dialysed iron was immediate.—*Phil. Med. Times,* Dec. 8, '77.

Transactions Kentucky State Medical Society, 1877. A handsomely printed volume of 215 pages, containing many well written essays, notably those of L. P. Yandell, John A. Octerlony and Richard A. Cowling, of Louisville; L. S. McMurtry, of Danville, and John L. Cook, of Henderson.

The opening address of Dr. R. U. Gaines, of Hopkinsville, although a little too flowery at points, is full of good, strong, common sense. His encomiums on Kentucky medicine and Kentucky doctors must be read in order to be fully appreciated. We do not wonder at the "State" pride with which the names of Drake, Dudley, McDowell, Brashier, Sutton, Jackson, Miller, and Rogers are mentioned; Kentucky has just reason to be proud of its brilliant dead. It would not have been out of place if Dr. Gaines had mentioned the names of its distinguished living, *i. e.*, Yandell, Gross, and Sayres. Taking the Transactions as a whole the vol. is extremely creditable. T. C. M.

Transactions of the Michigan Dental Association, 1877. A neatly printed volume of over 70 pages, containing many papers of especial interest to Dentists and Physicians.

Physicians are too apt to ignore the fact that dentistry is an important branch of medicine, and are prone to argue that the dentist pursues a mere mechanical art; forgetting that the preliminary medical education is an absolute *sine qua non* to the practice of the specialty. Oculists, aurists, and other specialists are received by the medical profession on an equality, while the dentist is barred out. We have never been able to see the fairness of this discrimination.

American dentistry has achieved more triumph abroad than any other American specialty, with the exception of surgery. The general introduction of false teeth has been a blessing to mankind, and the delicate manipulations of the dentist, has brought about more good to the "Public Health" than the mere introduction of the glass eye and the tin ear.

Physicians are quick to claim the introduction of *anæsthesia* as one of the glories of the profession. The discovery of the wonderful properties are solely due to dentistry, and medical men, in order to be consistent, must acknowledge the dentist as a doctor.

A perusal of the various "Dental Journals" and "Transactions" will at once convince the most skeptical practitioner that the average dentist is exceedingly well informed in medicine, and deserves a place with other medical specialists.

Dentistry is no more a mechanical art than Surgery, and both specialties are equally honorable. T. C. M.

Transactions Pennsylvania Medical Society, 1877. A volume containing over 800 pages.

We have so often spoken of the high standard attained by this Society, that further compliment is useless. It is the *only* State Society in this country whose transactions are up to the mark, and, if the other States would only model after it, we might have an annual contribution to medicine unexcelled by any country on the face of the globe. The essays contained in this work are all well written and valuable, and so numerous that want of space forbids even a brief mention. The medical men of Pennsylvania have long been noted for their culture and modesty, and working as they do in a quiet, unobtrusive way, have not received the praise due honest professional work. Had our Pensylvania friends the arrogant egotism of the Massachusetts doctor, combined with the brilliant charlatanism of the New Yorker, they might be better known. As it is, they have a medical record that will survive, and in the long run, be more creditable. T. C. M.

THE PHILADELPHIA DRUGGIST AND CHEMIST; edited by C. C. Vanderbeck, M. D. This new candidate for professional favor made its first appearance with the new year. Dr. Vanderbeck is an experienced journalist and fully appreciates the wants of the profession in publishing a periodical of this character.

Alumni Association of the Medical College of Ohio.—The annual meeting will be held on Wednesday afternoon, at 2 o'clock, the 27th inst., in the Amphitheater of the College Building. After reading the minutes of the previous meeting, Professor C. D. Palmer will deliver the oration of the day. The roll of the different Classes will then be called. All graduates of the College, and those of the Miami Medical College, who are entitled to a Diploma from the Ohio Medical College, are cordially invited to join the Association. In the evening the Alumni are invited to attend the meeting with the Graduating Class.

C. S. MUSCROFT, M. D., Sec'y.

THE "Detroit Medical and Surgical Journal" has been discontinued. There will be issued in its stead the "Detroit Lancet."—Editors, Drs. H. A. Cleland and Leartus Connor.

THE "Louisville Medical News."—Dr. W. H. Galt retires from the editorial staff of this journal; his position is occupied by Dr. Lunsford P. Yandell, Jr.

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Obituary.

DR. EDWARD M. WOOD.

Died, Edward M. Wood, M. D., February 12th, 1878, in the 34th year of his age.

Death has again entered the ranks of our profession in this city, claiming as his victim one of the most promising of our young men.

Dr. Edward M. Wood was the son of Dr. Thomas Wood, one of Cincinnati's best known practitioners.

The deceased was at the time of his death surgeon of the First Infantry, O. N. G., and served with his regiment at Newark and Columbus during the late strike, although at the time suffering with that grave disease (Consumption), which terminated his life.

Dr. Wood possessed a high order of ability, having performed with success a number of most difficult surgical operations. He had a genial and kindly disposition, and was a universal favorite in the circle of society in which he moved.

In company with a host of friends we sincerely sympathize with his bereaved widow and children, and the grief stricken father, who has indeed been a man of sorrows, having followed nearly every member of his family to their last resting place.

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THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., Editor.
T. M. STEVENS, M. D., Ass't Editor.

Vol. XXI.—MARCH, 1878.—No. 3.

Original Communications.

Art. 1.—Foul Air and Consumption.

Read before the Cincinnati Academy of Medicine, Feb. 25th, 1878.

By R. B. Davy, M. D., Cincinnati, Ohio.

In a disease so generally prevalent as tubercular consumption, carrying off two-sevenths (Hirsch) of those who die and giving evidences of existence in three-fourteenths of those who die from other causes one would expect the profession at large and even intelligent laymen to become more interested in it. Physicians throughout the land, to say the least, should be able, following the directions of the great observers of the old world, to guide their patrons through the ways of least danger, and keep the goal in view if they are not able to reach it. In public affairs statesmen are expected to care for the general good; are not doctors just as accountable to the public in their respective positions? Even considering the vast difference which exists between these callings I can see no reason why the physician should not come a step farther to the the front in matters of patriotism, and especially so in this case, since in purging his country of such a dreadful enemy as the tubercular taint, he would deserve more honor than a conquering hero. The physician, however, in his best role, cannot yet perform this feat; but he can approximate it. He can materially lessen the evil, if not able to eradicate it; and he is laggard on the one hand, or a dastard on the other, if he fails to do it. Though the history of this scourge of mankind extends as far back into antiquity as the birth of the science of medicine, and the present indications are that its progress is stationary, it need not be taken for granted that it is impossible to stay its course, or in the future, prevent it. Until lately very little was known concerning its cause, and consequently little could be done to prevent it; indeed our present knowledge does not make our treatment marvelously successful, and we are forcibly reminded more than once of the aphorism "an ounce of prevention is worth a pound of cure." The scrofulous diathesis (vulnerability of Niemeyer) is either hereditary or acquired. The taint derived from the parent, or acquired during malnutrition from bad air, diet, etc., is not incurable. In the former, however, the influence is more deeply anchored, and is apt to last; while in the latter, we might find it often tractable and easy to remove. In any condition there are incalculable gradations from the simplest to the most aggravated forms; and he who individualizes his patients is the one most fortunate in the end.

In a paper published in the "Clinic" for July 21, 1877, I quoted from Niemeyer and Ruehle to prove what I need only refer to here, that the scrofulous diathesis is often acquired, and as often eradicated. I will simply state now that recorded cures of cases in advanced stages of consumption are quite sufficient to show that the inherited diathesis, the half-way point between health and tubercular consumption, is also curable, and, in fact, so to a higher degree than we have any idea of. Our conceptions as to the extent of the cachexia are never positively defined until consumption has made its appearance, a fact which renders us incapable of distinguishing with absolute certainly the disappearance of the diathesis. That it may often require several generations to be eradicated is highly probable; but this all depends on the degree of vulnerability possessed by the individual. It is not necessary for me to enter upon an explanation of the characters of human protoplasm; that the more "vital tissues" are continually changing in response to the influences to which they are subjected, is a fact familiar to every one. That muscle is made in response to physical exercise, that new brain matter is the result of study; and that muscular and nervous tissue, blood, the blood-making and blood-purifying organs, and, in fact, the less important structures of the body are raised and lowered by varying hygienic conditions, are facts too well known even to be referred to. I mention them here because it is upon this foundation I venture these remarks; and if, as history proves, consumption has been and still is the scourge of humanity, the secret of its existence lies in unfavorable hygienic conditions.

The Troglodytes or cave-dwellers of ancient Nubia presented a good example of this power upon organisms and organic tissues. From an equality with neighboring tribes, they gradually underwent a degradation, spending most of their lives in foul burrows, till their race finally became extinct.

Dr. Brehm was able at once to recognize their remains by the demi-simian skulls, the attenuated brachial and femoral bones, and especially the narrow chests. (Dr. Oswald in Popular Science Monthly for Nov., 1877). The author does not say that this miserable race became extinct from tubercular disease, but leaves us to suppose so. The injurious effects of inhaling foul air into the lungs is no longer a matter of speculation; indeed in the healthy individual there is probably nothing so potent in inducing that weak and disabled condition of the economy which affords a ready and fertile soil for the production of tubercle. Notwithstanding this belief among scientific men, the masses, rich and poor, continue to breathe vitiated air, often from ignorance, but sometimes from indifference. There is among all classes the greatest prejudice against cold air and draughts; and to avoid the same, windows and doors are closed tightly, insuring the vitiation of the atmosphere of rooms in a short time. Strange enough there are persons who enjoy breathing an atmosphere loaded with their own exhalations. This is a curious phenomenon, and one to be compared to morbid appetites of various kinds.

The nose is the only sentinel we possess in guarding against bad odors, and how often does it fail to serve us, especially when we are quietly seated in a room. The sense of smell is very often perverted or temporarily destroyed by catching cold, and then the warning from bad air must be more decided, as lassitude and headache. In sudden alternations from pure to foul air, the nose is generally reliable, but only in detecting the heavy odor arising from the exhaled organic matter, which we may conclude is in a state of putrefaction.

But having said enough to introduce the subject let us look into the nature of the air respired by a great majority of the people of the world.

Atmospheric air in its purity is a mixture of about 79 parts of nitrogen and 21 of oxygen, besides containing one volume in 2,000 of carbonic acid, a variable quantity of watery vapor, and a trace of ammonia (Dumas & Boussingault). This composition remains about the same in all regions with the exception of a slight increase of carbonic acid in the neighborhood of large furnaces and workshops.

The atmosphere is never completely at rest. Its motion can be greater than nineteen inches per second, and still escape our detection, it seems to us to be perfectly still. Besides this Pettenkoffer has shown that air is constantly passing and repassing through the walls of buildings, and even, circulating through the ground to a variable depth (Popular Science Monthly, No. 62). That the air permeates our clothing at all times, is a fact too familiar to be dwelt upon. The above facts are very important, for they explain what before seemed a paradox that persons can often remain shut up in rooms for a long time without any apparent ventilation. But we shall have more to say about this permeability of walls as a means of ventilation, further on. The great source of impurities is the exhalations from the body; the lesser ones are the products of combustion, dust, etc. As air, which has not been breathed, is the most beneficial to animals; so is air which has been breathed the most hurtful to them. In the process of respiration air loses 5 per cent of its oxygen; and gains 4 per cent of carbonic acid, along with a certain proportion of organic matter dissolved in watery vapor (Vierordt, etc.).

It is a matter of some difficulty to determine which is the most important of these three changes in a hygienic point of view.

If the loss of oxygen was the only result of respiration, the same air might be respired 8 or 10 times with the only ill effect of producing mountain sickness; but with each expiration carbonic acid and organic matter are thrown off, so that the air is not only deprived of its pabulum, but charged with poison at the same time. As regards the injurious effects of carbonic acid and the organic exhalations from the lungs, it may be stated that the latest observers incline to the belief that the latter is the most injurious. Carbonic acid is an odorless gas, and so heavy that it can be poured from one vessel to another like water; organic matter is invisible and only detected by the nose. It would be a great satisfaction if some means could be found to demonstrate the quantity and characters of this substance. As it is, the degree of impurity is determined by the amount of carbonic acid, which is thought to accompany the substance in question in a constant ratio. One volume of carbonic acid in 1,000 vols. of room-air indicates the limits which divide good from bad air, provided man is the only source of the acid. (Pettenkofer).

The average amount of carbonic acid exhaled by the lungs per hour in the adult man, is, according to Andral and Gavarret, over 1,300 cubic inches; that of the old, young, and females being less. Let us suppose a closed room to contain 2,000 cubic feet af pure air. This has one cubic foot of carbonic acid already, and a little over an hour's breathing of an adult will produce another cubic foot bringing it to the limit of good and bad air. All additional respiration in this room only tends to intensify the pollution. In order that the air in this room shall remain pure it is necessary to change it entirely about every hour, and this despite the fact that only 18 cubic feet of air pass through the lungs in that time. "It has been shown in France, not by calculation, but quite empirically by simple experimenting, that 2,100 cubic feet per hour for each person is not more than absolutely indispensable. After the epidemic of cholera in 1848, the Hospital de la Riboisiere was erected with a ventilating capacity of 700 cubic ft. per hour and bed, which was thought at first to be too great. Experiment with half the quantity proved its total insufficiency and the capacity was successively increased until 2,100 ft. per hour and bed was reached, this being the smallest quantity that would satisfy the authorities.

The present demands for ventilation in France are, per hour and person, as follows:

	Cubic feet.
Hospitals for ordinary cases, - -	2,295
" " wounded, - - - -	3,530
" " epidemics, - - -	5,300
Prisons, - - - - - - -	1,766

	Cubic feet.
Workshops ordinary, - - - -	2,120
" unhealthy, - - - -	3,530
Barracks day, - - - - - -	1,060
" night, - - - - -	1,588
Theatres, - - - - - - -	1,588
Large rooms for long meetings, - -	2,120
" " " shorter " - -	1,060
Schools for children, - - - -	530
" " adults, - - - -	1,060

(Pettenkofer in Popular Science Monthly. No. 62).

The singular fact that so much air is needed where so little is really breathed may be to some extent explained by the peculiar nature of the pollution. I am convinced that the organic matter thrown off by the lungs, and in other exhalations from the body, clings to the walls of a room, articles of furniture, bedding, etc., so that a complete change in the air of a sleeping-room might take place and some of the impurities remain behind. I have demonstrated this in my own room repeatedly by literally flooding it with air for half an hour, during which time its contents were changed many times; yet an hour after being closed there was the same heavy odor, though no one had entered in the meantime. Bedding to be kept perfectly pure should be aired daily.

Pettenkofer has demonstated very clearly that air passes slowly through the walls of buildings, so as to dissipate carbonic acid, and ventilate the apartment; he has, however, failed to show that the most injurious component of foul air—the organic matter—passes through in a like ratio to the gas. Moreover he has not given us the hygienic effect of painting walls on the exterior and varnishing them on the interior, either of which would seem to stop the passage of air.

All these things in France or Germany might be dwelt upon with great energy, but here in the United States and especially in Cincinnati they are minor points. In the shade of great evils, these lesser ones sink into insignificance. The ordinary condition of the air in our public and private buildings is appalling in every sense of the word.

I will simply relate some facts pertaining to the Cincinnati schools, which aside from being model educational institutions, are dens of foul air, where children and teachers languish and suffer.

From the report of the analysis of school-room air in the different buildings by Prof. Hough, the following is gleaned:

Of the 265 rooms measured, 14 were found afforded less space than 100 cubic feet per pupil including his body and desk. They run from 56 to 95 cubic feet per pupil.

Expired air contains from 3 to 5 per cent of carbonic gas, enough to oppress any one inhaling it the second time with a sense of immediate suffocation.

A moderately small pupil when at study respires about 150 cubic inches of air in one minute. If this be diluted with from 2 to 4 times its volume of pure air it still contains 1 per cent of carbonic gas. So that considering the expired air of the average pupil to contain 3½ per cent of the gas, we can easily calculate that one minute's breathing will poison 1500 cubic inches of air to the extent of 1 per cent which is beyond the limit of endurance—.08 per cent. being the extent at which it ceases to be poisonous. By calculation we find that each pupil vitiates 10.85 cubic feet of air per minute, causing the air in the best room to be vitiated in 8¾ minutes, and that in the worst one in 5¼ minutes. To ventilate these rooms will require a complete change of air from 7 to 12 times per hour.

The very best ventilation possible at present without draughts, does not change the air even 4 times an hour. Extending the calculation it is found that each pupil vitiates 651 cubic feet of air every hour to the extent of .08 per cent, or half that quantity (325.5 cubic feet) to the extent of .15 per cent. From 200 to 300 cubic feet is then the smallest allowable air space for each pupil under the present methods of ventilation; and the lesser of these numbers is nearly four times as great as the actual quota of the worst room, and more than twice that of the best one.

Of the other 251 rooms measured, 22 afford less than 108.5 cubic feet per pupil; 166 less than 200 cubic feet per pupil; 236 less than 300 cubic feet per pupil; 29 afford 300 cubic feet or more per pupil.

These measurements embrace an average of all the schools. The report gives the proportion of carbonic acid per 100,000 volumes. In three fourths of the rooms were over 100 vols. per 100,000 and in the remaining fourth less than that quantity. The largest proportion (168.7 volumes) was found in the 13th district, but the main hall in the Public Library contained (165 vols.) nearly as much. This gas is taken as the index to the other impurities only in cases where the air is vitiated by man alone.

The report of Prof. Stuntz made in 1871 covers somewhat different ground. The supply of air for each person per minute was as small as 2.2 cubic feet (Woodward) and as great as 55.6 cubic ft. (3rd Intermediate) with an average of 12 cub. ft. The amount of carbonic acid in the rooms was as small as 3.5, and as great as 19.6 in 10.000 volumes (Woodward high school). Comparing the school-room air of other cities.

Average amount of CO_2 in 10,000 parts:

London, England, - - -	28.266
Washington, D. C., - - -	12.039
Cincinnati, - - - - -	12.02

The air in the old school-buildings in winter contains impurities in deleterious quantities; and that of all the buildings when the out and in-door temperatures are nearly alike. Ventilation in the new buildings improves very much in winter which cannot be said of the old ones. Both reports agree as to the lack of sufficient humidity in the rooms. Prof. Stuntz made most of his observations in March with open windows, which, in cold weather, would, as he admitted to me, occasion intolerable draughts. So much for the analysis of school-room air.

To assist us in censuring the present mode of ventilation let us know the relative power, to vitiate the air, of the child and adult. "It is probable from the greater number of respiratory movements in early life, that the production of carbonic acid, in proportion to the weight of the body, is greater in infancy than in adult life. Scharling shows that the respiratory activity is nearly twice as great, in proportion to the weight, in the boy of nine weighing 48.5, as in the adult of 35 years weighing 163.6 lbs. Confirmatory facts may be gleamed from the observations of Andral and Gavarret." (Flint on Respiration, pages 431—432). In Cincinnati alone there are about 43,000 children in public and private schools breathing air in various degrees of pollution, during five hours a day for at least 200 days in the year. Such an imposition on these defenceless innocents at an age when their natures are most plastic, and before their constitutions have attained the vigor brought by development, is a disgrace and shame to any administration. The diseases favored or produced by this thing are eminently preventable, and the authorities, who control this matter, cannot plead ignorance to alleviate their crime, for they have been warned more than once. The condition which most favors the production of consumption in adults is that termed by Niemeyer "vulnerability," and this, I believe, is present to a great extent in all children. If the children have consumptive parents then vulnerability amounts to a positive taint; and the inhalation of foul air is actually lighting up the disease which could otherwise be overcome. While upon the subject of school-room air, I will state that it is something more than expired air of the healthy subject—it is a mixture of air exhaled by all kinds of subjects; for while the majority are in health, others undoubtedly represent lung and other diseases in various stages of development. This, it will be seen, must greatly intensify the poison.

Another thing which deserves mention here is the peculiar character of the dust in school-room air. The floor receives all noxious matters expectorated from the lungs, which dry out promptly, and rise into the air to be inhaled and lodged perhaps, in some of the minute bronchi or air cells. This kind of air evidently embodies a greater evil than that which contains simple dust unmixed with expectorated matters.

I wish now to mention a still more crying evil than that of school-room air, and one which, unfortunately, is susceptible of less palliation. I wish to speak of the foul air of sleeping rooms almost everywhere. The princely dwelling is not free from it even, but as we approach the tenement, its horrors are greatly magnified. Here again I am compelled to resort to figures to make the facts more apparent. Let us take, for instance, an ordinary sleeping room among the upper classes, whose size is 12 by 16 feet with ceiling 12 feet high. The capacity of such a room is 2,300 cubic feet. The windows and doors have been carefully supplied with weather-strips to keep out the cold of winter and the dust of summer. We will say to be liberal, that the room is heated by an open grate fire.* In exceptional cases one individual only retires for the night in this room; and the windows and doors are almost invariably closed. While the fire burns in the grate, the ventilation is not bad despite the fact that fresh air enters only through the walls and crevices. But as the fire dies out, the air in the room becomes gradually stiller until the flue ceases to be a means of ventilation. The demonstrations of Pettenkofer go to show that insensible ventilation may still take place through the walls; but I doubt very much that the demands even of a single individual could be thus supplied. Supposing the grate ceases to ventilate actively at midnight, and half the air in the room is replaced by pure air through the walls, the sleeper arising at 7 a. m., will have breathed polluted air for at least an hour. This case is an exceptional one and represents the best means of ventilation we possess. More commonly we find a smaller room containing man, wife and several children. All apertures are scrupulously closed to prevent draughts, and the fire is covered with ashes on going to bed. The air of this room should be completely changed every hour at least, when in reality it is not changed once in four hours. The consequence is that its inmates breathe a polluted atmosphere six or seven hours each and every day of their lives during most of the year.

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*It is oftener the case that a stove is used.

There is another class of people who live in two rooms, one of which contains a cooking-stove, where the only fire in the premises is kept. The ventilation of these rooms is still more difficult, the windows being invariably kept down. The moisture from cooking fills up the pores in the walls, and cuts off the passage of air through them (Pettenkofer); while the inmates are left to breathe the same air over and over again all night long.

This condition is only intensified in the lowest tenement houses. Inability to pay for fuel and rent drives them together to share the miseries of the smallest and cheapest rooms. Disease is the general companion of this extreme poverty, and its nature may often be guessed from the history alone—foul air has done its work. Whoever has served the city in the capacity of out-door poor physician has had an opportunity of witnessing the effects of a vile and polluted atmosphere almost unconnected with other causes. A vitiated diet, one of the greatest evils of some countries, can hardly be imagined to exist here. Hunger can be satisfied by a small outlay, but pure air is too dear a luxury when it brings in with it the biting cold of winter. Many of these poor wretches spend most of their time, night and day, in their vile dens—drenching themselves with one of the slowest but surest of poisons. We cannot wonder then why our hospitals and death reports are mainly filled from this class, since their thread of life has become so fragile as to be broken almost by the alternations of day and night.

In 1870 in New York city the avearge tenement house mortality was 7 per cent. for the year—in the worst houses it was 17 per cent. There was a total mortality in the city of 25,167. Of these 16.15 per cent were from public institutions—31.06 per cent from private houses, hotels, etc., and 52.79 per cent from tenements. But since the hospitals were recruited almost entirely from the tenements, their deaths should be considered along with the last named making 68.94 per cent from this class (Edward Crapsey)*. Now since statistics prove that so many of all the deaths are from consumption, we can set down nearly one third of these to that affection. Thus we can distinguish the origin and growth of this monster disease mainly in the foul air of dwellings. If we add to the eight hours spent in bed, the three hours (daily average for the year) spent in school we will see that the child passes at least eleven hours per day in an impure atmosphere.

Parents who take their children from school and set them at work cannot congratulate themselves on the change; for the air of the work-shop is if anything worse than that of the school-room, and the confinement per day is several hours more. Men and women who leave ill ventilated bed-rooms in the morning to enter worse ventilated work-shops, spending two-thirds or three-fourths of their time in a vitiated atmosphere, are not expected to live out the full expectancy of life. Foul air is undoubtedly the greatest factor in the reduction of the average age attained in Manchester, England, to twenty-nine years.

I have now said enough I hope to convince all interested in this subject that the inhalation of bad air is the most fertile source of consumption. Persons living always in the open air, although possessed of the scrofulous taint seldom die of it; yet healthy individuals in opposite circumstances succumb comparatively often. "M. Motte-Baudin," of the *Jardin des Plantes* in Paris dissected the dead animals for more than twenty years and found invariably that all monkeys had succumbed to phthisis. They are accustomed to inhabit the branches of trees, and imprisonment is death to them. Among the negroes of Senegambia consumption is absolutely unknown; yet a single year passed in the steerage-hells of the slave-trader was often sufficient to develop the disease in its most virulent form. Our home statistics show that the percentage of deaths by consumption in each state bears an exact proportion to the greater or smaller number of inhabitants who follow in-door occupations (Dr. Oswald in Popular Science Monthly, No. 67). The only measure we can adopt to remedy this evil is to supply the natural demands of the system—to supply an abundance of pure air. Paul Niemeyer sets down the hourly need as 600 cubic feet, but the French, in their public institutions furnish on an average over twice that quantity. Pure air is seldom welcome if it brings cold along with it; therefore it must be pleasant to be acceptable.

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* Nether side of New York.

After devoting a good deal of time and study to this matter I have come to the conclusion that none of our existing methods of ventilation are sufficient to supply nature's demands for fresh air The open fire—the best ventilator we possess—is, in many instances, impracticable; and loses its power to ventilate in proportion as the outside and inside temperatures approach each other. Moreover in very cold weather they do not furnish heat enough. We will drop the subject of ventilation here and return to it at some future time; but before ending this paper, let us glance at another improperly conducted enterprise of our city—the running of street-cars. An undertaking like this, which is patronized so extensively by nearly everybody, should be a model of hygiene; whereas, in truth, it is little less than a gross abuse of the public confidence, and an insult to scientific truth. Ignoring the evil features connected with street-cars in regard to the propagation of disease by contagion, we shall only deal with them as moving magazines of foul air. Each car contains about 800 cubic feet of air, which, with the rear door wide open, and all other appertures closed, does not change completely once in ten minutes. Suppose now the car is comfortably filled with, say twenty persons each vitiating at least 600 cubic feet of air per hour. These individuals would be compelled to breathe impure air after the first five minutes, and the vitiation would go on intensifying with every consecutive five minutes that followed. Compare this average condition with the extreme when 50 or 60 crowd into the car, obstructing the door, and reducing the capacity for breathing air to about 200 cubic feet for the whole number of passengers. Connect with this the fact that weak persons ride more generally than strong ones, and that their exhalations, from lungs and skin, are more poisonous than those of perfectly healthy individuals. Not the least among the evils of street-car management is the straw nuisance. I imagine that no one would object to it the first day. It is really a comfort to bury one's feet ankle-deep into it, knowing all the while of its purity. After the first day your mind has changed about it. It has been trampled, raked hither and thither, and spat upon a thousand times. When one walks in or out, the dust (composed mainly of dried expectoration and street filth) rises up and fills the entire car; and this is what you breathe without being aware of it. A close observer can satisfy himself, any day when the sun is shining into the car, that the statements here made are no misrepresentations or exaggerations.

Every physician knows too well the effects of breathing dust, and every stone-cutter and tailor gains the same knowledge in attempting to have his life insured. But as with other things, it is mainly the weak who suffer. The strong and vigorous can generally breathe out the dust as they breathed it in; not so with the delicate. Their tissues are peculiarly liable to that slow inflammatory action which naturally runs into consumption.

This picture of "foul air" is not intended as a spite against our city. Cincinnati, in this respect is probably no more than an index to other civilized cities, notwithstanding the fact that the last report of our health officer deplores the steady and rapid increase of consumption among us. The remedy to the evil, as put by the best authorities, is "open air;" but the lamentable fact is that the remedy is so slow in becoming popular.

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Art. 2.—Diseases of the Rectum.—Internal Hæmorrhoids.

No. VIII.

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The radical difference which exists between the external and internal forms of the hæmorrhoidal affection will be illustrated by comparing the cases of the former complaint, detailed in an article in the LANCET AND OBSERVER, October 1877, with those narrated in this one. As has already been stated, the anatomical character of the parts in which the hæmorrhoidal growths develop, should be thoroughly understood by whoever seeks to acquire truthful ideas of the nature of these affections. This knowledge is an indispensible requisite for the comprehension of the internal form of the disease; in fact, no adequate description can be given of the affection without referring not only to the structures of the part, but also to its functional offices. In order that these references may be intelligible—also, because descriptions of the anatomical characters and functions of the rectum are not generally accessible—a brief review of the more important points will be premised.

The external longitudinal fibres which invest the rectum have three distinct distributions. One part blends with the levator ani and ascends with the fibres of that muscle; another set pierce the external sphincter and attach themselves to the tendinous center of the perineum and, by means of fibrous prolongations, to the integument about the anus; while the remainder curve around the lower border of the internal sphincter, ascend on the inner aspect of that muscle and are attached to the terminal fourth of the lining membrane of the rectum. Between the mucous lining of the lower portion of the rectum and its muscular wall is to be found a quantity of loose areolar tissue which increases in quantity the nearer the anal orifice is approached. These structures, so important for the physiological process of defecation, are likewise potent agents in the production of the structural changes which constitute the morbid anatomy of internal hæmorrhoids. In order, however that the pathology of the latter may be correctly appreciated, it is essential that the blood supply, and the vascular distribution of the rectum, should be correctly known. The rectum is largely supplied with blood, and the vessels to be observed on its outer side are large, and the branches which they send through the muscular coats ramify between them and the mucous membrane.

In the observation of Quain, that independently of their position as regards the coats of the bowel, the arrangement is not the same throughout the rectum, can be verified by any careful observer."* Thus, over the greater part, the arteries and veins, taking both systems of vessels as following the same course, penetrate the muscular coat at short intervals, and at once divide into small branches which hold a transverse direction, and form a network by their communications with the sub-divisions of other vessels of a similar nature. Towards the lower end of the bowel for the length of about five inches, the arrangement is quite different. Here the vessels have considerable length, and their direction is longitudinal. Penetrating at different heights, they are directed in parallel lines towards the end of the intestine. In their progress downwards they communicate with one another, and are still more freely connected near the orifice of the bowel, where the arteries all join by transverse branches of good size, and the veins form loops and inosculate with equal freedom. The venous plexus just within the internal border of the external sphincter is about three-quarters of an inch in length, and is most marked between the longitudinal columns of the rectum. This plexus does not extend beyond the internal border of the external sphincter, but branches from it, passing between the fibres of the internal sphincter, descend along the outer edge of the former muscle close to the integuments surrounding the anus. An acquaintance with these peculiarities in the circulation is very important to one who desires to become acquainted with the mechanism of certain pathological processes in these parts, especially the manner in which internal hæmorrhoids are developed.

In the article treating of ulceration of the rectum—the third of this series—a few remarks were made relative to the physiology of the large intestine, but more especially of its terminal portion, the rectum, the substance of which it would be well to recall prior to entering upon a consideration of the mechanism by which the greater number of cases of internal hæmorrhoids are produced. It was then stated that when the bowels are regular in action, and the daily evacuation always had at a particular hour, the rectum is empty at all times, except during the few moments which precede a call to the closet. From the termination of the sigmoid flexure, at the junction of the descending colon with the rectum to the sphincter of the anus, the walls of the rectum are as thoroughly in apposition as the walls of the œsophagus. Whenever the regular time for emptying the bowels comes round, relaxation of the circular bands of muscular fibre at the lower part of the sigmoid flexure occurs; and this intestinal movement corresponds with the sensation which the person knows is the signal for defecation. The fecal matter passes from the rectum and if the sensation then developed is heeded and the person retires to the water closet, the bowels are regularly evacuated. But, as has already been insisted upon, this physiological warning is not an imperative command, it is still within the power of the person to resist the call. As a general rule, a neglect to respond to this intimation is followed by a subsidence of the uneasy sensation, and the act of defecation can be postponed for from an hour to a day. In such cases the relaxation of the fibres at the sigmoid flexure, and distension of the rectum, are followed by an antiperistaltic contraction in the walls of the latter; the rectum expels its contents into the colon, and the fibres at the sigmoid flexure contract. When the bowels are neglected, and permitted to become irregular, the rectum may not empty itself after the signal for defecation has once been given; in such a case the rectum becomes a reservoir for fecal accumulations. In such cases, instead of the organ remaining empty and collapsed like the œsophagus, its canal furnishes lodgment to masses of excrementitious matter which should be evacuated. Whenever the feces remain in the rectum for any length of time, their watery portions are absorbed and the residue is left in the intestine as a plug of hard, dry, foreign material. The muscular efforts necessary to disengage it, are far more powerful than in health. Generally some form of cathartic medicine has to be used in order to secure a satisfactory motion. In either case, extensive hyperæmia of the bowel is induced. The eversion of the mucous membrane incident to normal defecation is exaggerated; the interruption to the circulation which is but momentary in health may now be attended by a certain amount of serous effusion, and be followed by a painful or uneasy sensation deep in the fundament—quite commonly there is more or less hæmorrhage at the same time. Distension of the veins at the lower part of the rectum is accompanied by a tortuous course on the part of those which usually pursue a straight direction; the materials effused during defecation often glue their adjacent parts together, and render the loops thus formed a permanent condition of the venous trunks; while the effect of the sphincter upon the slight enlargement thus produced is to mechanically irritate the part, to increase the quantity of the morbid products in the submucous cellular tissue, and occasionally, to induce either hæmorrhagic extravasation, or coagulation of blood in the affected vessels. The circumscribed enlargement thereby produced projects into the cavity of the rectum, and so stimulates the muscular structure of that organ as to excite prolonged and violent efforts to expel what feels like a foreign body in the lower part of the large intestine. The œdematous structures are grasped and pinched by the sphincter, and the morbid process, already initiated, is thus stimulated into greater activity. The connective tissue about the vessels becomes condensed and hypertrophied, the arterioles and venules enlarge and project more and more into the cavity of the organ, and the obstruction to the passage of fecal matter, which is very great during congestion of these parts, exists to a certain extent at all times. In advanced cases, something like the following course of events can be traced: These circumscribed enlargements or "tumors" from daily contact with the mass of fecal matter as it is extended from the bowel, are gradually pushed before it, and through the yielding of the loose connective tissue between the mucous membrane of the rectum and its muscular coat, at the lower fourth of that organ, they are finally forced through the anus with a stool, carrying with them more or less mucous membrane in which they have developed. This constitutes prolapse of the hæmorrhoidal tumors. When the sphincter muscles contract promptly around these tumors, their return is prevented; if the circulation be interrupted for any length of time, sloughing, to a greater or less extent, may be increased. The mucous investment of these enlargements becomes thickened and altered, and occasionally presents a granulated surface similar to that of the conjunctiva when the subject of chronic inflammation. The vast number of minute arterial ramifications near it, become dilated and bleed when irritated. When this condition exists, a motion harder than usual, or a trifling derangement of the digestive organs, attended with hepatic congestion, may excite a profuse flow of the blood from the rectum.

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*QUAIN, Diseases of the Rectum N. Y., 18[illegible] p. 32.

So far as concerns size and position of the growths, the varieties of internal hæmorrhoids are almost innumerable. In some cases they are so small as to reveal nothing more than a trifling increase in the number and size of the vascular trunks distributed to the mucous membrane of the rectum; in others they form tumors the size of the fist. Bleeding is a characteristic symptom in some, and may recur daily; in others, after continuing for a length of time, it may cease, never to return. In those attended with hæmorrhage, the blood may be either arterial or venous; it may pass away in a continuous oozing, or be discharged in a series of jets, or again, run out in a continuous, if small stream, accordingly as it arises from a small artery, the capillary circulation, or a minute vein. The hæmorrhoidal growths occasionally rest quietly within the internal sphincter and only appear externally during defecation. Far more commonly do they not only come down at stool, but protrude whenever the patient makes any active muscular exertion. In a few cases of long standing, the piles are always down. The number of the growths, their size and situation are points of minor importance compared with their structual characters, and the presence or absence of hæmorrhage. Accordingly, in arranging the different forms of internal hæmorrhoids into groups for the better study of their clinical characters, their structure will be made the basis of division.

In an affection so common, and so widely distributed as the one under consideration, a just appreciation of its causes would require more time and space than can be devoted to it in this paper. For the present, it will suffice to say that among those influences which predispose to the development of internal hæmorrhoids there are none more important than Hereditary Tendency, Age, Sex, and Occupation. The effect of inheritance is undoubted, but its influence in particular individuals is hard to estimate. Age has a two-fold effect—with increase of years the parts about the rectum become susceptible to this disease by long use and by local changes, especially in the vessels; while the changed habits incident to advanced life, promote rectal affections in proportion as they gravitate towards in-door occupations and sedentary habits. Sex deserves its place among the predisposing influences, from the fact that the changes incident to child-bearing, the peculiar periodical congestion of the pelvic organs as each menstrual epoch passes, and the retired habits of women all conduce to develop hæmorrhoids. Finally, occupation, when it interferes with an out-door life and active muscular exertion, in like manner conduces to the development of this disease. The one great exciting cause, not only in professional but in popular estimation, is constipation. A careful study of the manner in which internal hæmorhoids develop, however, will speedily convince a competent observer that another element, in addition to the constipation, is necessary for the development of this affection, that is, a certain amount of congestion of the liver. The vessels of the rectum are extremely susceptible to changes in the vascularity of the liver, and a moment's attention will show why this is so. The blood returning from the veins of the rectum, not only ascends against gravity to reach the liver, but the vascular trunks in which it is conveyed break up and form a second capillary plexus in the organ. It occasionally happens that two patients suffering from internal hæmorrhoids become constipated, and one has hæmorrhage from the piles while the other has not; the explanation being that there is congestion of the liver in the one who loses blood, while there is no change in that organ in the other.

Hæmorrhage constitutes one exceedingly valuable means of distinguishing between the different varieties of internal hæmorrhoids. The presence of this symptom will enable the observer to exclude one large division of the affection, and limits the diagnostic problem to the recognition of one of the two remaining forms of the disease. This is true, provided the classification devised by Mr. Allingham is the one adopted, and as his sub-division is based upon natural distinctions, and can readily be verified by the observation of a number of cases, it will be followed in this paper. In fact, but a day or two since, the writer had an opportunity of testing its truth in a very satisfactory manner. The mother of a young girl, of fifteen or sixteen, called to consult me relative to a curious feature which had developed in her daughter's case, some six or seven months ago, and persisted ever since. During the menstrual epoch the girl lost blood from the rectum, as well as the vagina, and for a day or so every month, after the discharge from the latter passage ceased, there would be an exhausting hæmorrhage from the former. Although there was no loss of blood at any other time, and the trouble had been in existence but a few months, yet the girl had grown weak, and presented a pale and languid look. From the best information I could obtain, the patient's condition had not been improved by the course she had pursued, for her parents consulted an ignorant colored empiric, and followed the advice he gave them, which was too loathsome and revolting to appear in print. The state of the vagina permitted but an imperfect digital examination, which revealed nothing wrong with the genito-urinary apparatus. Rectal exploration was more satisfactory; on the left wall of the organ, at a point about an inch and a half from the anus, there was a spot which felt much as if a piece of leather, the size of a nickel, had been placed beneath the mucous membrane. It felt soft and spongy and seemed to project beyond the surface of the rectal wall. A profuse hæmorrhage followed the withdrawal of the finger. After considerable trouble, and some distress to the patient, I succeeded in obtaining a view of the affected part, which looked as if the seat of a bunch of pale, exuberant granulations. The slightest touch excited a flow of blood. The patient was of great assistance in enabling me not only to see the part, but helped me materially in applying fuming nitric acid to the bleeding point.

Internal hæmorrhoids of the form just alluded to are called *Capillary Hæmorrhoids.* In structure they are distinguished by more or less hypertrophy of the sub-mucous cellular tissue, with a greatly increased development of the capillary vessels of the lining membrane of the rectum. A more careful examination will reveal changes in the mucous investment of the growth which may either assume the characters of granulation tissue, as in the case alluded to, or present the appearance of minute lobules like a raspberry, and consist of thin walled vessels, arterial and venous, together with capillaries so dilated that a mere touch is all that is required in order to develop profuse hæmorrhage. Again, with a base of hypertrophied and vascular cellular tissue the mucous membrane over it is not infrequently studded with minute bodies presenting a striking resemblance to trachomatous granulations. As a general rule, when bleeding piles first develop, the foregoing is the anatomical condition present. In such cases, the blood lost is bright in color and arterial in character.

It is not a common occurrence for hæmorrhoids discharging arterial blood in a continuous stream to become prolapsed; yet, such is occasionally the case. Thus, a lady lately delivered of her first child, on the morning after the day she ventured abroad, was seized with violent expulsive pains at the water-closet, together with what she thought was a profuse watery discharge. After this had continued for some little time without relief, she grew so weak that she was compelled to summon assistance. When raised up she fainted, and continued to do so when placed in the erect posture. Chancing to be in the neighborhood I was summoned in haste, and upon making an examination found a large hæmorrhoidal growth which had been extruded, firmly embraced by the sphincters, and bleeding freely. A careful examination showed that its surface was covered with a plexus of minute vessels, that the growth was formed of hypertrophied sub-mucous cellular tissue, and that a number of large arterial trunks could be felt converging towards it. A little manipulation effected its return, and an enema of warm water, to which some perchloride of iron had been added, speedily checked the flow of blood. This was the first intimation this patient ever had that she was afflicted with piles.

The tumor in this case, excluding the character of the hæmorrhage, would be a fair example of the *Arterial Hæmorrhoid.* Most commonly the latter are tumors varying in size, but hard, slippery and glistening, and when they bleed, the blood comes away in small jets. Large arteries are distributed to them, and they rarely discharge blood unless prolapsed and strangulated by the sphincters. In structure they consist of a firm stroma of connective tissue, most marked externally, and a series of arterial and venous trunks which anastomose freely and are tortuous and irregularly dilated.

The remaining form is the *Venous Hæmorrhoid.* This is the tumor that is so commonly becoming prolapsed, and is the largest as well as the most common form of the affection. The bulk of this hæmorrhoid consists of dilated venous trunks supported by a firm stroma of cellular tissue. It rarely if ever bleeds, and like the arterial tumor, is often the cause of a profuse watery discharge.

In glancing back, I can recall many cases during the past eleven or twelve years, in which the first phenomenon developed was hæmorrhage; in which a morbid growth, or hæmorrhoidal tumor, with or without hæmorrhage, attracted attention; and finally, after years of suffering, the hæmorrhagic tendency subsided and a disposition to "prolapse" took its place. In the beginning no enlargement was noticeable, but the hæmorrhage was very troublesome; then, as the losses of blood became infrequent, the inflammatory attacks and prolapse of the growths took place. The amount of suffering from prolapsed and inflamed tumors depended greatly on the state of the sphincter; when the latter was weak and atonied, one source of agony, spasmodic compression of the swollen and inflamed growth, was done away with.

Physicians are quite frequently summoned in great haste to relieve the agonies of one whose piles have prolapsed and become strangulated. When this accident occurs for the first time, there is more or less hæmorrhage. After a time the flow of blood increases; then the hæmorrhoids become the seat of a throbbing, pulsating pain of the most intense character. The patient, especially if a woman, will endure the suffering for a number of hours; at last utterly exhausted she falls asleep. The circulation sinks to its lowest point, and the patient may enjoy uninterrupted repose for some time. When aroused, however, the heart beats more rapidly, and the pain recurs with a degree of intensity that is almost unbearable. The foregoing facts explain why the medical attendant is so generally summoned to these cases at night. In treating such patients unless the prolapsus is of long duration and the danger of sloughing imminent, I rarely now resort to taxis, but at once inject, hypodermically, from a quarter to three-quarters of a grain of morphine. This measure has been attended with the happiest effect in all but one or two cases. I cannot recall more than three cases in the last seven years in which it failed to cause the piles to return without mechanical assistance. In two of those I was obliged to elevate the hips, place the patient on his face, and while compressing the hæmorrhoidal tumor with an oiled cloth with one hand, to insert the forefinger of the right hand beyond the ring of the sphincters and to slowly and carefully return the prolapsed part, carrying that part last everted within the compressing muscles first. In all cases it is well to administer an opiate before manipulating the exceedingly tender part. In the other case, a fold of mucous membrane, with part of the subjacent pile sloughed off, causing the patient a great amount of pain, but resulting in decided benefit so far as future suffering was concerned.

The treatment of internal hæmorrhoids may be either, first, Operative; second, Medicinal; or third, Hygienic. Operative measures can rarely be relied upon to the exclusion of remedial and hygienic agencies; medicinal treatment would be of little avail without the adoption of means calculated to procure and preserve health; while the best results will always follow a judicious combination of all the resources at the command of the surgeon in individual cases, without regard to the class in which they may belong. Yet, for an enumeration application of the diverse agencies which can be adopted, the foregoing division is very desirable. Glancing first at the surgical measures it will be found to include *Cauterization*, *Excision* and *Ligation* of the hæmorroidal tumors, each of which embraces two or more distinct operative procedures. Thus:

1st. *Cauterization* has of late years risen into deserved prominence from the attention drawn to the subject by the excitement created by the advocates of the nitric acid treatment, some ten or twelve years ago. The late Mr. Houston, a distinguished anatomist and surgeon of Dublin, in a paper published in 1843 in the *Journal of Medical Science* of that city, strongly recommended the use of nitric acid in the treatment of two special forms of hæmorrhoidal growths—the florid vascular piles. Ten or fifteen years afterwards two London surgeons did much to popularize this treatment—Mr. Henry Smith and Mr. Henry Lee—and in the warm controversies which were developed on account of the indiscriminate use of the remedy in all kinds of cases, the subject was so rigidly investigated that advantage accrued to all phases of surgical treatment of the rectum. Mr. Lee's account of the two forms of disease in which Mr. Houston recommended the use of the acid is so true to nature, that I quote the whole paragraph from page 105 of Lee's *Diseases of the Rectum:*

"The first of these is described as a sort of aneurism by anastamosis of the small vessels of the mucous membrane and submucous cellular tissue; the second, is of a chronic inflammatory nature and best illustrated by comparing it to the red, villous, tender hæmorrhagic surface exhibited by the mucous membrane of the eyelids in old cases of chronic conjunctivitis."

In 1848 Mr. Houston published some cases and observations, showing the application of this mode of treatment to various other forms of hæmorrhoidal growth, and especially, to such as were connected with a relaxed condition of the mucous membrane of the rectum. He said that the benefit to be drawn from this plan of treatment must not be expected 'til the small ulcers made by the caustic begin to heal. The loose folds of mucous membrane are then drawn upon, and the whole mucous lining rendered more tense. Each small cicatrix, moreover, serves as a permanent point of attachment for the relaxed membrane, and consequently, the inner coat is retained permanently in contact with the other coverings of the bowel—an important point, as in many cases it alone descends. The beneficial results attendant upon the use of the nitric acid are equally well attained by the employment of the acid nitrate of mercury. In some cases the latter acts better than the former. The applicability of this form of cauterization is limited to that variety of hæmorrhoid known as the Capillary. In such cases this plan of treatment is quite efficacious. The following is the best way to use the liquid caustic:

Means having been taken to bring the pile into view, the patient should lean over a chair or table, and the nates seperated by an assistant or the hands of the patient. With a thin, flat spatula of soft pine wood which has been dipped into the acid, apply the escharotic to the entire surface of the hæmorrhoid until its red color is changed to an ashen hue. In applying it so that no red point is left, care must be taken that the skin is not touched. If this is avoided, but little or no pain will be excited. Smear the parts well with oil—having first wiped them dry—and return them within the rectum. My own plan is at this point to so distend the sphincters mechanically, that their power of spasmodic contraction is suspended for several days.

The use of the galvanic cautery is so much restricted by the bulk and unhandiness of the mechanism necessary, that, valuable as it is as a method of destroying hæmorrhoidal tumors, it will never become extensively employed, and needs no attention at present.

2nd. *Excision* alone is never to be employed in the treatment of internal, howevor valuable it may be in the cure of external piles. Combined with the actual cautery it is the plan so popular with many distinguished German surgeons, and has many powerful advocates among leading London practitioners. The complete protrusion of the growths is an important preliminary point, and is best effected by the action of castor oil, administered several hours before the time of operating. This done, the patient should recline on his left side on a bed or a couch, and, if an anæsthetic is used an assistant should seperate the nates, if not, the patient may perform this duty. Seizing each growth seperately, it is to be drawn firmly outwards and its base embraced with Smith's clamp; the projecting tissues are then to be strangulated by firmly closing the blades of the clamp, and excised with a pair of scissors, curved on the flat. The stump should then be dried with lint, and carefully seared with a red-hot cautery iron. This done, the clamp should be loosened, little by little, in order to detect any spouting vessel, which, when discovered, is to be retouched with the iron. Each growth is to be dealt with seperately, in this manner, until all have been removed; then all the cicatrices are to be freely oiled and returned within the rectum. The clamp which is formed of two opposing plates of thin metal, lined with ivory and coming together like the blades of a pair of scissors, should be provided with a spring to hold them together when closed. One important point is to not disturb the eschar; therefore, if the sphincters are to be distended, it should be done before the removal of the growths.

3rd. *Ligation.* There are two methods of using the ligature, both of which have strong advocates. There are likewise two kinds of ligatures—the elastic and non-elastic—each of which has its special advantages. The usual method of applying the ligature is as follows: The protruded tumors are held in place by an assistant while the operator perforates the base of the one to be ligated with a needle armed with strong silk cord. The doubled ligature is caught, the needle withdrawn and the end which passed through the tumor snipped off with a pair of scissors. This leaves the tumor with two strands of cord through it. These cords are then tied, one on each side, and the ends are permitted to hang out of the rectum until all the tumors are ligated in the same way, when, if desired, they can be snipped off with the scissors. The plan which I am in the habit of using, and the one I think best, is the one known by the name of the late Mr. Salmon, and was introduced into the practice of St. Mark's Hospital by that gentleman some forty years since. It is also the one commended by Allingham and Curling, the two most recent authorities on the subject of diseases of the rectum. Its principal distinguishing feature is based upon the anatomical fact fully dwelt upon in the first part of this paper, that the vessels of the lower part of the rectum run in a straight course through the sub-mucous tissues of the lower portion of that organ. When the tumors have been exposed as in the ordinary operation for ligation, one of them is seized by the forceps and detached from the walls of the rectum through the inferior three-fourths of its extent, the operator being careful to cut parallel with the rectal wall and not into the substance of the pile. The upper remaining attachment of the tumor consists almost wholly of vessels, and is ligated in one of two ways; it is either perforated in the way just described, and each lateral half of the neck is independently compressed, or the whole is included in one ligature, which is tied in the notch formed by the scissors. The latter is in many respects to be preferred, there is then no likelihood of a vessel being transfixed, as occasionally occurs when the needle conveying the ligature is passed through the neck of the pile. The elastic ligature which possesses so many advantages in the treatment of fistula-in-ano, will never rival the inelastic cord in the treatment of internal hæmorrhoids and requires no special mention in this connection.

In addition to the three classes of surgical measures just enumerated, there are two others which have attracted attention from the character and ability of those who have advocated their use. One is the ecraseur; the other, the employment of torsion in the removal of hæmorrhoids. With the former I have had sufficient experience to convince me that it is a painful and inefficient method, very often, succeeded by hæmorrhage; the latter, I have never tried in the treatment of hæmorrhoids, and can conceive of no advantages it can possess over the ligature.

No surgical operation should ever be performed upon the rectum without attention to the state of the bowels, and careful inquiry into the general condition of the system. There is a broken down condition of the organism attended with disease of the liver and kidneys, which may escape observation without examination of the renal secretion. Operations in such cases are very often fatal; no operation should ever be attempted in such a patient for the cure of hæmorrhoids. A careful preliminary examination of the urine will inform the surgeon of the danger to be avoided. Again, there is a nonsensical notion in many minds that hæmorrhage from the rectum is always salutary and should not be interfered with. Undoubtedly, there are cases of venous hæmorrhoids in connection with hepatic disease in which a flow of blood, by relieving congestion of the liver, is attended with advantage, but such a case differs widely from the draining of the system of the vital fluid which occurs in hæmorrhage from capillary and arterial hæmorrhoids. The local depletion by loss of blood could be much better accomplished, so far as the good of the patient is concerned, in many other ways. In preparing a patient for an operation, the abdominal organs should be put in as good condition as possible. This is the best accomplished by the administration of a mild mercurial three nights before the operation, with some cathartic mineral water every morning for two or three days prior to the time for operating. On that morning, administer a full dose of castor oil, and do not operate until at least an hour from the last passage. The system is then in a condition to stand any strain the after treatment may require. Again, many persons suffering from hæmorrhoids bear with all the agony and inconvenience they produce until the tumors become inflamed; the pain is then so great that they demand an operation at once. Many surgeons are indisposed to operate at such time, but I must say that I have never seen any ill-effect succeed operations upon inflamed piles. It is much better to use the ligature after Mr. Salmon's plan, and to remove all the growth except the stump grasped by the ligature.

The after treatment is of great importance in operations on the rectum. The patient should remain in bed for twenty-four hours after any operation; then it is better that he subsequently rest on a lounge. Quiet is very essential. The bowels should be confined with opium, and I find great benefit from the administration of cod-liver oil, commencing its use on the third day after the operation. The time the ligatures will seperate will vary with the operation and the bulk of the part strangulated. When Salmon's method is employed, and cod-liver oil administered as just indicated, the bowels will move of their own accord between the fourth and sixth day, and in the vast majority of cases, the ligatures will come away during the evacuation. It is always good policy to inject about six ounces of warm olive oil, using a long, flexible pipe and carrying the oil directly into the sigmoid flexure of the colon, as soon as the bowels manifest an inclination to act. The same course is advisable with the first motion after any operation. All the ligatures should come away before the fourteenth day.

Operations upon the rectum are very generally dreaded on account of the danger of hæmorrhage commonly thought almost inevitable. Since the excision of internal hæmorrhoids has been abandoned, and care taken to avoid surgical interference in cases of organic disease of the kidneys, secondary hæmorrhage has become quite infrequent. The possibility of hæmorrhage in any case —even of ligature—has been forced upon my mind of late, and now I never operate and leave a patient without seeing to it that there are means of plugging the rectum, always at hand. When called to a case of secondary hæmorrhage, the bleeding vessel should be isolated and tied, if possible. Sometimes the parts are so swollen that the bleeding point can not be reached; again, the ligatures may cut out, and the blood made to flow worse than ever by the very attempt to check it; or, the hæmorrhage may be an oozing from a large and inaccessable surface. In such cases, the patient's strength and the surgeon's time are saved by at once plugging the rectum. The best, most expeditious and satisfactory way of doing this, is to pass a strong, double ligature through the pointed extremity of a cone-shaped sponge, hollow at the base, to moisten it with water, squeezing it thoroughly, and saturate it with the per-sulphate of iron. Then, having inserted the left forefinger into the rectum, pass the sponge to the depth of at least five inches; withdraw the finger and stuff the lower end of the intestine with a bandage, unloosing a roller for this purpose and passing in its free end first. The bandage should drop into a vessel containing a strong solution of persulphate of iron, and be inserted into the rectum with all the styptic it can hold. Two rollers will suffice in any case—often, one is enough. When the end of the bandage passes within the sphincter, the surgeon should place the fingers of his left hand against the materials he has inserted, while he draws on the double ligature that passes through the sponge with the other. In this way, the sponge is opened and the rectum distended.. This effectually checks any hæmorrhage. Occasionally it is well to insert a female catheter through the center of the mass, when first put in, in order to evacuate any gas that may collect. This plug may be left in the rectum for a week, with safety. One advantage of the plan just detailed is the facility with which the obstruction can be removed when necessary. All that the surgeon has to do, is to take hold of the last end of the bandage, and pull the whole mass out. It is quite different with a plug of lint and iron.

The Medical and Hygienic treatment of hæmorrhoidal growths is occasionally curative, and always of value. It is hard to draw the dividing line between these measures and those of a surgical nature. Perhaps as good a ground of division as any, is to include under the former all the resources advised by the practitioner which the patient can apply himself. Thus, if the former have a case of capillary hæmorrhoids requiring attention, and he apply to the diseased surface the fuming nitric acid, there can be no doubt but what the treatment is surgical. But, on the contrary, if the patient be decided to procure a quantity of persulphate of iron, and to inject into his rectum a strong solution of the same twice a day, there would be ground for doubt as to the purely medical nature of the treatment. Yet, on the score of convenience, it is desirable to include under the head of Medical and Hygienic measures all those which the patient can employ without the aid of the surgeon.

Some years since I had my attention drawn to the case of a young professional friend, with whom I was thrown in daily contact, who, at that time, suffered intensely from internal hæmorrhoids. For two years after leaving college, while studying Medicine, he could not attend lectures, owing to his inability to remain any length of time in a sitting posture. The slightest irritation brought on hæmorrhage; he became greatly emaciated, but his morbid fear of an operation induced him to continue in agony rather than seek surgical aid. The hæmorrhages grew infrequent when the tumors became large enough to protrude externally, but attacks of inflammation, with spasm of the sphincters came on instead. In order to obviate the latter, rather than with any hope of securing permanent relief, this gentleman began a rigid course calculated to render the bowels regular and free the rectum from congestion. He employed mild laxatives to keep the bowels open; he would retire to the water-closet at a certain hour every morning, and remain there until he had an evacuation. When costive, he solicited nature with an enema. After each motion he directed a stream of cold water against the anal orifice until the part was not only thoroughly cleansed, but until the rectal walls were contracted, and the tumors were drawn within the ring of the sphincters. Then he assumed the recumbent posture, and rested for from half an hour to an hour. In his diet he did not restrict himself so long as his bowels were open. Every day he exercised in the open air for several hours. At first, he would have to stop and return the prolapsed hæmorrhoids, but in a few weeks after he commenced this course, he was no longer troubled in that way. In short, he found himself free from any annoyance, and although the tumors were still present, they were greatly reduced in volume, they never protruded nor became inflamed.

There is a measure of a surgical character which I have found of rare value in the treatment of those cases in which, for any reason, the ligature cannot be employed. This is the forcible dilation of the anal muscles, to which I have made allusion, as a valuable adjunct in the treatment of this disease. The cases in which it is of greatest use, are those in which the piles are arterial or venous in character, and in which the patient is annoyed by protrusion with inflammation and spasm. With it should be combined all measures of a medicinal or hygienic character, calculated to keep the bowels open and free from congestion, and to cause absorption of inflammatory products. In many instances the anal orifice can be distended, and the muscular fibres of the sphincters rendered temporarily inactive, by an amount of force which will cause but a trifling degree of pain. The full benefit of this measure can be obtained by those only who keep perfectly quiet for from one to two weeks subsequently.

The relief of constipation is of great importance in the treatment of any form of the rectum, particularly of hæmorrhoids. The confection of senna is a reliable laxative, but a very expensive medicine. An excellent substitute can be made in this way: Procure four pounds of the best figs, cut them up fine and add a teacupful of white sugar. Take eight ounces of senna leaves, place them in a close vessel and add eight ounces of boiling water. Place on a hot stove and let it draw for ten minutes; then strain and pour the infusion over the figs and sugar, which have been put in a sauce-pan, and let the whole stew until it forms a jelly-like mass. Twenty or thirty minutes will suffice; great care should be exercised to prevent burning. When cold, put in ordinary glass tumblers and seal them up with paper dipped in white of an egg. The dose will vary with the individual—a half-teaspoonful generally suffices. It is one of the most agreeable, certain and painless laxatives I am familiar with.

A few years ago there were a number of drugs which had a reputation for the cure of piles. One well-known remedy extensively used in England thirty or forty years ago, was called "Ward's Paste." The pharmacopœia contains a confection of pepper designed to take its place. While an attending physician at the Bureau for the Relief of the Out-Door Poor, connected with Bellevue Hospital, New York, I had the apothecary compound some pills which I administered in cases where piles were troublesome. They acted admirably, and acquired a local celebrity which led a number of druggists in the eastern part of the city to call on me and request a copy of the formula from which they were prepared. One enterprising individual went so far as to bestow on them a name, and to advertise their virtues in a manner that caused me no little annoyance. They were composed of *black pitch*—each pill containing three grains—as follows:

℞	Black Pitch	ʒj
	Magnesia	q. s.
M.	ft. pil. No. 30.	

Dose: Two immediately after meal.

In quite a number of cases these pills, in connection with other measures of a hygienic character, produced marked relief where the suffering had previously been almost unendurable. This remedy was first used in this affection by a medical gentleman named Wardleworth, of Cheetham Hill, near Manchester, England, who contributed an article on the subject to the *Lancet*, in March, 1843.

In conclusion, I would simply say this: In no class of diseases is accuracy of diagnosis more important than in hæmorrhoids. Not only must the practitioner satisfy himself of the existence of piles, but, before applying remedial measures, he must know that there is no complicating complaint. Fistulæ, strictures, tumors, both polypoid and parenchymatous, fissures and abscesses must be recognized or excluded. The capillary, arterial or venous nature of the hæmorrhoid must then be determined, and 'ere surgical, medicinal or hygienic measures are resorted to, the presence or absence of disease in neighboring organs—especially the liver and kidneys—should be settled beyond question, or no good can accrue from any treatment.

Art. 3.— City Hospital. — Clinical Lecture on Retained Placenta.

By JNO. D. TATE, M. D.,

Member of the Hospital Staff; Ex-President of the Academy of Medicine, etc., etc.

Gentlemen:—I bring before you to-day a case which gives us the history of a retained plactena. Now, as such cases are always annoying and sometimes alarming, perhaps we could not spend an hour more profitably than in looking over the circumstances which attended the delivery of this woman. The record of the case will now be read:

E. S.; native U. S.; æt. 20; primipara; of average size; full habit; well developed; temperament nervo-sanguine; urine normal; bowels regular; personal and family history good.

October 29.—Labor came on at nine P.M.; F. H. 143 r. i. q.; souffle below umbillicus; vagina cool and moist; membranes soon ruptured spontaneously; os admits finger, is thin and dilatable. Six A.M., a living child delivered; rupture to the verge of the anus; waited ten minutes for the placenta to come away: then traced the cord along the vagina and found the edge of the placenta protruding slightly through the os. Now resorted to Crede's method during three successive pains, but without results; then introduced the hand; found that a small portion of the placenta seemed to be attached to the uterus, but it was seperated without difficulty, and the whole was delivered. The uterus contracted well, and there was but little hæmorrhage. The third stage lasted fifty minutes. On examination the placenta was found to present the usual evenness of surface on its uterine side, and to be of ordinary weight and dimensions. Three serre-fines were applied to the ruptured perinæum half an hour after the birth of the child.

November 1.—Removed the serre-fines and found adhesion along the whole line of rupture. Mother and child doing well.

Now the history of this case shows that it was supposed to be one of adherent placenta; on this account the hand was introduced to effect its delivery. Moreover, the *interne* had the impression that possibly part of the placenta had been left in the uterus. Was this then really a case of adherent placenta, and was a portion of the after birth left behind?

An answer to the first of these interrogations necessarily involves an attempt to appreciate the causes which occasion the retention of the placenta. These are said to be abnormally large placenta, want of expulsive power of the uterus, hour-glass contraction, spasm of the os, and adhesion to the uterus. To these we will add lateral obliquity of the uterus. In this case you see the placenta was not unusually large; no spasm was encountered at the os, nor was there any contraction detected as the hand passed into the body of the uterus. Neither was there a failure in the contractile efforts of the uterus, as it could be felt pretty firmly contracted around its contents. The case was then either one of retention from adherence, or of lateral obliquity of the uterus.

Adherent placenta, although often dreaded, is rarely to be met in the parturient chamber. It cannot occur without previous inflammatory action and effusion of fibrin, by which the placental mass and the uterine wall become as it were glued together, just as we see the pleura pulmonalis and costalis become firmly united under similar circumstances.

Now, when this unusual condition is found, it has been attended by symptoms plainly appreciable by the patient. There is an impression on her mind that something is wrong—a history of pain having been experienced from time to time in one or the other side of the uterus during gestation. In this case both these indications are wanting. Where the placenta is only partially adherent, the retention is always attended by a great loss of blood, and consequent prostration; but in this case the hæmorrhage was quite moderate, and the general system but little effected.

Moreover, the placenta when examined after delivery, on its uterine surface presents no departure from the normal condition. There is the same soft lobulated mass—the same evenness of surface and continuance of margin—widely in contrast to the rough and jagged appearance which is found where vitally adherent structures have been torn asunder.

Neither the history of the case, the circumstances attending the delivery, nor the appearance of the mass, appear to be consistent with the idea that it is an example of retention from adhesion.

I regard the case as belonging to that numerous class of which we have seen frequent examples, where the placenta is retained in consequence of lateral obliquity of the uterus. The organ remains in the abdomen, and is lodged far to one side or the other of the median line in the illiac region. In consequence of this the expulsive efforts of the womb are exerted at a very great disadvantage. The axis of the uterus does not correspond with that of the superior strait, and when contraction takes place the expulsive force will of necessity push the placenta against the side of the cervex uteri—not through the os, and thus its expulsive throes be completely frustrated. If, however, this obliquity be corrected by pushing the fundus up to a line corresponding to the spinal column, then the expulsive force can be exerted in a favorable line of direction, and the placenta in general will soon come away.

This brings us to a consideration of the proper treatment of the female after the child has been delivered—the conduct of the accoucheur during the third stage of labor. For my part I consider that as soon as the child is born, the placenta having now no further office to perform should be regarded as a foreign body in the genital system, and the sooner it is gotten rid of the better for the female. As long as it remains, and distends the uterus, more or less hæmorrhage must go on from the open vessels, and every drop of blood thus unnecessarily lost, is just that much subtracted from the means of rapid and happy recovery.

The patient herself, is always in a state of anxiety, if not of alarm, as long as the after-birth remains. It has been found too, that one of the principal sources of danger to the puerperal female arises from the retention of clots within the uterus, the intromission of air, decomposition, and purulent infection. Now, one of the surest means of preventing this would certainly be, to sesecure early and efficient contraction of the body and cervex uteri—in a word, to drive out the enemy from within, and to prevent communication with allies from without, by shutting down the gate through which they could enter. So long as the uterus remains distended either by the presence of the placenta or large clots of blood the os will not contract efficiently and the access of air to the interior of the womb will be greatly facilitated.

Moreover, if the case in the end should turn out to be one of those which will necessitate the introduction of the hand, that manœuvre can be more easily performed, and with less pain to the woman, than if an hour or two had elapsed, and the maternal passages been to a greater or less extent contracted. The researches of Dubois have shown that even in normal deliveries from twenty minutes to three hours will be consumed before the after-birth will come away, if the case be left to nature. Impressed with the value of these considerations I am in the habit, as soon as the child is born, to give attention at once to the immediate delivery of the placenta. If the child breathe well I give it no care until I place my hand over the uterus, and see that it is well contracted; after this the cord is tied in two places, cut between and the child removed. The woman lying in the usual obstetrical position, (on her back), if not already there, should be drawn close to the edge of the bed, and the accoucheur sitting on her right side, should place his left hand over the fundus uteri, carry it toward the median plane of the body, and make firm grasping pressure on it, as it is held between the thumb and fingers. In the meantime, the right hand having been passed under the limb of the woman, and the cord having been wrapped firmly around the three forefingers, traction is to be made upon it, the hand being carried as far backward as the bed will allow. In this way the pressure from behind, tending to push out the placenta, and the traction from below conspiring to draw it out, its exit will be found to be greatly facilitated, and in most instances the business of expulsion will be over in a few minutes. If, however, this should not take place, we endeavor to secure a better position for more efficient traction, by placing the woman on her left side, for then the fingers embracing the cord can carry it back to the posterior commissure and thus secure a line of traction to correspond more fully with the axis of the uterus. In this way, with the left hand grasping the uterus while the right is drawing on the cord, a sort of consentaneous movement under the control of the will is employed, looking to a given result. Every change of position is at once appreciated on the instant, and each is made to play its part in the accomplishment of the end in view. Thus the placenta, like a ripe peach, is pressed out of its cover, the left hand on its part at once takes cognizance of its escape, and the tractile force is on the instant suspended. When the placenta has come down into the vagina the right hand is carried forward toward the symphysis, so as to make the line of traction correspond with the axis of the inferior strait. A slight effort withdraws the placenta without further difficulty.

The tractile force applied to the cord is only modified by its strength of resistance, and if, perchance it break, I do not feel at all alarmed, in fact, care as little about it as I would the snap of my fingers. The situation is in no respect made worse—no additional hæmorrhage has been brought on—and if the placenta remain in the uterus, which it very rarely does, that is just where it was when the manipulations were begun. Such is the plan of managing the third stage of labor which I have now pursued these many years, and by which hundreds of women in private practice, and in the Good Samaritan, and in the City Hospital, have been safely delivered.

By this method it is the general rule that the woman is completely delivered and the binder applied within fifteen minutes from the time when the child was born—all hæmorrhage is arrested and the woman happy in the assurance that her troubles are over.

Now, what are the objections to this manner of proceedure? They are twofold.

First.—It is said that by this method, inasmuch as the cord is attached to the center of the placenta, traction upon it will of necessity draw down foremost that portion of the mass, and thus present it at the os centre, centre to centre. The researches of Duncan have shown that usually where the case is left to nature the placenta presents itself at the os, by some portion of its rim, and certainly it will pass outward most readily in that manner. Possibly in a case when the placenta was attached high up near the fundus, this reasoning might apply; but the investigations of Van Ritgen have shown that this is very rarely its position, that on the contrary nearly always that organ is attached low down on one or the other side of the uterus. In practice too, it is found to be the fact that the placenta glides easily over the well lubricated sides of the womb, and presents its rim at the os, just as a cake of ice glides smoothly over a board, into whose center a pick is inserted and drawn upon.

But the second and great objection to this method of procedure is the fear that it will induce an inversion of the uterus. Our countryman, Meigs, has dwelt at length upon this grave apprehension with his usual vigor of style, and felicity of expression. One might almost think that in Philadelphia they would really be afraid to touch the cord whilst the placenta yet remained in utero. Now, if one were simply to employ both, or even one hand, in making violent traction on the cord, we can readily perceive that an inversion would be likely to follow. But this is not our plan, but rather a masterly employment of both hands in concert of action, the one over the uterus holding it in position, grasping it, appreciating fully its size, repletion or vacuity; the other drawing on the cord, regulating its force, its direction, its suspension, by the knowledge sent to it from its fellow in the hypogastric region. Surely with such a method no inversion could be begun, much less completed, without a knowledge of it passing immediately to the mind, whence a fiat would be issued that all further operations should at once be suspended. No amount of ingenious theory, or of gloomy apprehension, should be allowed to out weigh an extended series of observations at the bedside, in a great practical question like this; and when I tell you that I never lost a case of post partum hæmorrhage, or ever saw one of inverted uterus, except the case of the old lady who came last year into our hospital with one of forty years standing, you may judge how chimerical are these fears of inversion of the womb.

Indeed I am persuaded that no other method of delivering the after-birth is half so practical, efficient or safe as this one, which combines proper position, grasping action and traction. In addition to other considerations recommending its use, I should mention that except in cases of real adhesion, it will entirely avoid the necessity of introducing the hand into the uterus, a proceeding against which some facts which I had the melancholy opportunity to see in the dead room, have given me an invincible prejudice.

The second inquiry which our patient's history presents is: Was any portion of the placenta really left in the uterus? And here at once appears *the value in all cases of examining the after-birth immediately after its delivery.* Here as you see the placenta presents the usual normal condition, the surface uniform, every lobule in its place, and the rim and membranes all intact and in proper relation, so that no portion of it could have been left behind. Such examinations, however, are not insisted upon in our books, and I think are generally neglected by the profession. I shall therefore narrate some cases illustrative of their interest and importance:

Within the last year I was called into consultation to see Mrs. C.; aged 32; the mother of four children, and who had recently given birth to another. During the first seven days after confinement nothing unusual was observed in the case, except that the woman had frequent after pains, and seemed to be wasting too freely. At the end of the week, however, she was seized with such a profuse flooding as to bring on faintness and great prostration. From this in a few days she appeared somewhat to rally, but still the after pains returned, and still the wasting proceeded. Things went on in this way until the night of the twentieth day, when a more severe flooding than ever came on, accompanied by fainting, gasping, pallor, and cold sweat, and in fact, the patient and her friends looked upon her case as hopeless. The next morning I was called. On entering her apartment and beholding the patient lying all pale and bloodless as a corpse, the idea of transfusion at once suggested itself, as probably affording the only hope in the case. On examining the patient I found her intelligence clear, the skin cool, and her pulse barely perceptible. She narrated her symptoms, and especially referred to the continuance of the after pains. This led me to immediately conceive that possibly a hardened clot or piece of the placenta had been retained, and was keeping up the contractions and relaxations of the womb. The woman was quickly drawn close to the side of the bed, and the right hand placed over the fundus uteri, now diminished to the size of the double fist. The left hand was introduced within the pelvic excavation, and the fingers made to sweep the uterus. In a few minutes they were withdrawn and found to bear with them a portion of placenta and membranes, which had been torn from the outer edge of the placenta at the time of its delivery. After this the uterus took on healthy contractions, the hæmorrhage was at once arrested, subevolution went on well and the woman soon entirely recovered her health. Now, had the greater portion of the placenta which was first expelled in this case been examined, the break in its surface must have been discovered, the remainder sought after, and this poor woman saved from the extreme peril which she underwent.

The value of such examinations is still further shown by the fact that they will often enable us to understand circumstances which have occurred during gestation or parturition, which otherwise would seem inexplicable.

Some years ago I was called to see a lady in Covington who appeared to be in labor. She thought herself she was, and had already given birth to several children. She had regular recurring pains, and her linen and bed were wet with a fluid which had escaped from the womb in a considerable quantity. This fluid continued to escape for three days, when it ceased, and no more liquid came away. Just thirty days afterward the woman was seized with real labor pains, an unbroken sac distended with fluid presented itself at the opening os; in due time it broke spontaneously giving exit to the usual amount of liquor amnii, the labor went on properly, and after a while a living child was born. Now, was this case one of rupture and subsequent repair of the sac, or what was its nature? This placenta was examined with a great deal of interest. On taking up the specimen the membranes were found to compose two sacs, the one exterior to the other, the laminæ being entirely seperated from each other, as far up as the cord; both of these sacs were ruptured; the rent in the interior one through which the child had recently passed, was much smaller than that of the exterior, which appeared to have been broken some time. Most probably these sacs were the seperated amnion and chorion which in the progress of gestation had not been allowed to coallesce; a secreting surface had formed between them, into which a fluid had been poured. After awhile the excessive distension burst the exterior sac and the water escaped, which soiled the bed and linen thirty days before the child was born.

On another occasion by examining a placenta soon after delivery I detected among the membranes the body and secundines of a twin fœtus, which having died in utero about the fourth month, had been subsequently pressed by the living child against the walls of the uterus, until its body and head were as flat as a pancake.

I might narrate to you other cases showing the value and interest which attaches these examinations, but I forbear.

I have said nothing about the treatment to be pursued in those cases where the placenta is retained by real adhesion. Our patient's case does not suggest it, and I will only take occasion to earnestly recommend to you the advantage in all cases where it becomes necessary to introduce the hand into the uterus, of turning your patient upon her side, and bringing her hips close to the side of the bed. In this way you will secure greater freedom to the movements of the elbow, and greater ease and facility of action to the hand in utero, and will more certainly attain the object you may wish to accomplish.

You may have remarked that it was a part of the history of this case that the perineum was ruptured to the sphincter ani; that serre-fines were applied, and that complete union had been secured. I cannot enter on this subject now, but have given a great deal of attention to it, and have collected a large number of facts which I hope to make useful at some future day.

In conclusion, allow me to narrate to you the history of a case where traction was employed, but not after the method which we have suggested:

A doctor who had early abandoned his profession and spent the best portion of his life in the iron trade, became suddenly captivated by one of our modern theories in medicine, and determined again to return to professional pursuits. One of his first patients was a very beautiful and accomplished lady, who came up from the South and stopped at one of our fashionable hotels. Shortly after she was taken in labor and the doctor summoned to attend the case. There was nothing unusual about the business until the third stage arrived, when the placenta obstinately refused to come away. The practitioner having exhausted all his other resources, peremtorily ordered his patient to get out of bed, and walk around the room, the sapient doctor following close behind and pulling away manfully on the cord, until at length the placenta was dragged away.

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Art. 4.—City Hospital.—Inverted Uterus of Forty Years Standing Reduced in Half an Hour.—A New Method.

By J. H. TATE, M. D., Cincinnati, O.

Bernhardt; German; æt. 78; widow; below medium size; physical powers well preserved; health good. History: came to America some forty years since, and gave birth to her last child in this country when she was thirty-six years of age. At that time she thinks the inversion took place, since which her womb has never been right. About six years ago she had a severe fall, and ever afterward there has been a complete prolapsus of the vagina and womb. Has never consulted any physician in regard to her case, because she was always ashamed to let her condition be known.

Present state: There is complete procidentia uteri, with both vesicocele and rectocele. The whole surface of the vagina down to the os has been converted into common integument. At the lower edge of the vagina there is a superficial ulcer an inch and a half in length by half an inch in breadth. At the most dependent part of the vagina hangs the uterus completely inverted, hypertrophied to the size of a duck's egg, feeling quite firm, and its inner surface, (now outside), covered and moistened by a glairy, mucosaneous fluid. The urethra now leads from above downwards, and in consequence, the urine is passed with much difficulty.

July 29.—Patient was put under chloroform, and Dr. Tate proceeded to make the reduction. Present of the Hospital Staff, Drs. Young, Carson and Dandridge, and Dr. Haile, of the city. The fore and middle finger of the right hand were introduced into the rectum and carried up far enough to allow them to be placed above the rim of the os uteri, and thus secure a point of counter pressure. The balls of both thumbs were then placed against the fundus, and strong pressure made to push it inward. Working in this way for some time the fundus was found to yield a little, but the fingers in the rectum became fatigued, and the cervex would slip away from them toward the opposite side. At this point Dr. Dandridge suggested that if the finger of the left hand were inserted into the bladder probably the parts could be held more firmly and the counter pressure be made complete. The urethra was dilated in a minute or two, and then the forefinger of the left hand carried through it into the bladder, and placed over the rim of the os, directly opposite where the fingers rested which had been introduced into the rectum. The uterus was thus firmly held between the fingers in the rectum and bladder at the cervical end, and the balls of the thumbs resting over the fundal extremity, and now the pressure on the fundus was renewed. In a few minutes a decided impression was made, the fundus became deeply indented. At this point a star candle with a soft rag wound around its end was planted against the fundus in place of the thumbs, and with strong pressure made against that part the inversion was soon completely reduced.

The whole operation did not occupy more than thirty minutes. To insure its retention a silver suture was made to bring together the lips of the os uteri, and then the prolapsus was reduced. A sponge covered with oil silk smeared with lard was introduced into the vagina to prevent subsequent procidentia; the woman placed in bed and ordered to maintain the recumbent position. If pains ensued opiates were to be given.

July 30.—Patient quite comfortable; has taken no narcotics. At night took a cathartic.

July 31.—Had two alvine evacuations, pulse and temperature normal; can now pass urine voluntarily; no trouble about the urethra.

August 1.—Removed the ligature from the os; uterus in normal position; prolapsus of the vagina still prevented by the sponge.

August 21.—Patient has been up and about the ward for several days; it is found that the sponge will not retain the vagina in place; the uterus, however, is still in proper position. Recommended to the patient, as a means of permanent relief, the operation of perineorrhaphy.

September 1.—The patient will not consent to any further operative procedures, and left the hospital with no further trouble than the procidentia, the inversion having been completely cured.

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Art. 5.—Cæsarian Operation.

The Cæsarian operation, properly speaking, was made on dead women more or less advanced in pregnancy. To Numa Pompillius,

NOTE.—The recent discussion in the Cincinnati Academy of Medicine, following the report of a case of Cæsarian section performed by Dr. George Walton, of this city, has awakened much interest. A late edition of the *Clinic* reported the discussion in full. In the remarks of the various gentlemen on the subject numerous statistics bearing on the operation were quoted, in the meantime, several authorities on Cæsarian section seem to have been overlooked. We reproduce from the French, a few facts bearing on historical and statistical points. T. C. M.

J. A. Stoltz. (*Nouveau Dictionnaire de Medicene et de Chirurgie Pratiques*, v. 6, p. 188, *et seq.* Paris, 1867).

one of the first Kings of Rome, is attributed a law called for this reason *Lex Regia*, which forbids the burial of a pregnant woman without an extraction of the fetus. This law remained a long time in force in the different countries under Roman domination, being sanctioned by Christians and adopted as the civil law by the majority of northern states, especially Germany. During many ages no one appears to have employed the operation on the living woman, while no scruples were held in attacking the living fetus and extracting it through the natural passage. It is necessary to come down to the 15th century of the Christian era in order to find the narration of an operation of this kind (Nicolas de Falconis, 1400), and the first authentic case only dates back to 1500. A gelder of hogs, named Jacques Nufer, says Bauhin, opened his own wife's belly for the purpose of extracting the fruit of conception, after several midwives, called for the purpose, had failed to accomplish delivery. The operation was entirely successful. Siebold, doubts, with some reason, that this operation, as well as many others of the 16th century, were anything else than gastrotomys followed by the extraction of infants generally dead.

The first treatise, *ex professo* regarding the Cæsarian operation, was that of Francois Rousset, published in French in 1581. This work was translated in almost all the countries of Europe. C. Bauhin gave it in Latin in 1588, this edition is the one most commonly known. Rousset sought to prove the possibility of saving the woman and her offspring by means of this operation, by facts and by reasons, but he was attacked by most of his contemporaries, notably Ambrose Paré and Guillemeau, who partook of the opinion held by Mauriceau, Viordel, Peáu and others. The 17th century was generally incredulous. In the 18th century, the question continued to be discussed and finally the general medical opinion favored the operation. Numerous operations proved the possibility of double success. Up to the end of the 18th century we possessed about 150 cases, which did not offer however all the plausibility that truthful and convincing statistics require. In the early part of the 19th century, the great number of authentic facts gathered permitted the establishment of statistics favoring the operation. Thus, Michaelis, (Kiel, 1838), who collected all the statistics published from 1801 to 1830, counts 130 perfectly authentic cases, of which 54 terminated happily, and 76 unfortunately for the mother. Kayer (Havniae, 1841), added to these about 80 cases, gathered from 1830 to 1840. One-third of these operations were followed by success. From 1840 to 1860, at least 160 were counted, making a total of 370 cases based on desirable guarantees. More than one-third of the women undergoing the operation were saved, and at least two-thirds of the infants were extracted alive. Seventeen times to our knowledge the operation has been performed several times on the same person; one among these having been operated on five times, four times with success.

It is consierded, in general, that the Cæsarian operation has been performed with success in at least a third of the known cases, it is also certain that the definite results of the operation have been very different, following countries, localities and operators and according to the conditions in which they were placed. It is this in part which has given rise to bitter controversy, and often exclusive opinions. In England, for example, success has been rare (1 to 7—according to West), so English accoucheurs condemn the opration in an almost absolute manner, although it has been bravely defended by Hull, of Manchester. It succeeds less often in the great centres of population than in the small villages and in the country. Thus in Paris, not a single success was obtained in sixty cases of operations performed during the last fifty or sixty years, while the country has furnished a great number of successful cases. For instance, in the Department of Creuse, the Cæsarian operation was performed six times from 1843 to 1852, and all six operations succeeded (*Memories de l' Academie de Medicene*, t., xv). In the large Lying-in Hospitals, it has genarally failed; those of Paris and Vienna—where from four to eight thousand accouchments per annum occur, not counting a single success. Certain operators have been exceptionally lucky; we may cite among others, Stein, Meissner, Hoeboceken, Kilian, Billi, Guisard, who have succeeded every time they have undertaken the operation, or two out of three, four out of six, etc. I have myself been successful four times out of seven, with all the infant's born alive, while others have always failed. Some of these latter nevertheless have remained zealous partisans for the operation; we need only cite Baudelocque. The greatest number have become its bitter adversaries, although admitting that there are cases where it is the only resource of art and offers the only chance to save the life of the woman and child.

In order to give an exact idea of the results that the operation furnishes, it is not then necessary to simply report particular statistics, it is necessary to take the cases together and make known the conditions under which the operation has been performed, for it is certain that it has been undertaken in desperate situations where it had no more than the least chance of success. Was the fault in the operator? No, without doubt let us say with Delcurye."

In addition to Stoltz's essay, the superb work of Magrier and Halmagrand contains an elaborate article on the subject. From the "*Nouvelles Demonstrations D' accouchements*—Paris, 1840," we cull the following extract:

"Operation Cæsarian." According to Baudelocque we call the Cæsarian operation, that which is performed upon the woman to compel the birth of a child by any other way than that designed by nature. Actually the Cæsarian operation consists not only in removing, in a given case, a child from the belly of the mother by means of an incision made across the anterior walls of the abdomen and womb, but also by incising the uterine neck through the vagina, when the neck is too hard to dilate itself naturally; from wherever arises the division of this operation into *abdominal* and *vaginal hysterotomy.*

Although the word Cæsarian operation may be improper, since it indicates nothing contrary to the spirit of that which is indicated by the preceding definition, we shall preserve it because it is sanctioned by tradition.

We shall not seek to ascertain whether the operation was performed among the ancient Jews, or whether it was, as Guy de Chauliac says, under obligation to Julius Cæsar for its name, or whether this illustrious Roman can claim it because his mother underwent the operation to give him birth. No one can find anything positive regarding this etymology of authors, it appears only reasonable to admit that its origin, probably very ancient, was due to chance, and to some traumatic destruction occurring in the belly and womb of a woman already far advanced in pregnancy, a destruction it may have been necessary to increase for the purpose of removing the infant from the uterine cavity. However this may be, the first authentic operation of Cæsarian section, only dates back to 1500. This was the case of Jean Nufer, a gelder in the village of Siegershensen, and performed upon his wife Elizabeth Aliposchie (See Simon, "*Memoire de l' Acad de Chir.*, *tome* 1st, 3d part, p. 214). And the first work published on the subject, was that of Rousset which appeared in Paris, in 1581, under the title "*Traite Nouveau d'Hyster at omotokie.*" A work in which it is noticed, for the first time rationally, and with the proof at hand, that the operation may be performed with success upon the living women, for surgeons, with the exceptions of Nufer, had not dared up to that time to perform it except upon the dead woman, at a period of pregnancy when the infant was viable, after the seventh month of intra-uterine life for example. If we seek for the opinion of celebrated accoucheurs regarding the operation in works that have been published up to the present day, we find that some too greatly exagerate its happy results, while others, to the contrary, have professed a contempt for it, that it is far from meriting. Thus, Simon studied the question during his time, and states that in 70 cases the operation had been performed with success. His operations are drawn from the work of Rousset and the appendix added by Bauhin. But Ambrose Paré (*Ouvrage de Chirurgie*, chap. XXXVIII), thought that the operation exposed the woman to too much danger. Marchant and Mauriceau regarded its success as impossible; Peau thought the same; and Dionis (*Traite des Accouchments*, p. 311), wished to punish all those that performed it upon the living woman. Almost all English surgeons oppose the operation, which is owing to the fact that they operate too late, and within much more restricted limits. The Germans and French are much less exclusive. Evidently, such opposite opinions on the part of men so justly celebrated, should lead us to examine with attention the facts known in regard to the matter. Thus, in the great number of observations mentioned by Rousset and Brahin, it is said that women after having been delivered by this operation have afterwards been happily confined, in the natural way. This proves that in cases where it has been performed, he might have dispensed with the operation and afterwards delivered the child in a less dangerous manner to the mother; but, as on the other hand, there are cases in which the women would have died if they had not been delivered by this extreme measure, as for instance in cases of deformity of the pelvis, it follows that we must not reject the operation in an absolute manner, and that, in order to appreciate its value in general, it is necessary to submit known cases to a new analysis, and compare the reported successes with those unsuccessful.

Now we find in the *Traite Complet des Accouchements*, Paris.

1835, of Velpeau, the number of cases known at that time in which the following statistics are noted:

CASES UNFORTUNATE FOR MOTHER.

1st 18th century,	number	78.
2nd 19th century up to 1835,	number	69.
Total - - - - -		147.

CASES FORTUNATE FOR MOTHER.

1st 18th century,	number	70.
2nd 19th century up to 1835,	number	48.
Total - - - - -		118.

If we add to these the cases known up to the present time (1840), we find:

Hebdom.—1835, p. 410, by Stoltz of Strausburg; Fortunate for mother and child.

Archiv.—1837, t. 1, p. 373. Fortunate for mother and child

Archiv.—1838, t. 1. Operated twice successfully for mother and child.

Archiv.—1838, t. 2, p. 222; 1st observation, fetus dead, mother recovered. 2nd observation, fetus living, mother dead. 3rd observation, fetus and mother dead. 4th observation, mother and child living.

Experience.—1838, t. 2, p. 218. Mother and child living.

Experience.—1839, t. 3, p. 156. Mother and child living.

Archiv.—1839, t. v., p. 100. Unfortunate for mother.

In all fifteen cases, for there was one in which the mother was operated on twice.

In these fifteen cases 12 women and 13 children have survived; 3 women and two children died. This would give to the women one dead to five, and to the children one dead to seven. The proportion of success to failure in the series of fifteen cases is very favorable, as will be seen. Adding unfortunate cases to the 147 indicated by Velpeau, and the fortunate cases to those quoted by the same authority, we find:

1st.	Unfortunate cases - -	150.
2nd.	Fortunate cases - - -	130.
	Total - - -	280.

Which gives the following proportion:

Success to failure 13: 15. That is to say we save a little less than one to two; (almost fifty per cent.)"

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Art. 6.—Medical Opinions of the People.

Valedictory Address, delivered before the Trustees, Faculty and Graduating Class of the Miami Medical College, in Pike's Opera House, Feb. 26th, 1878.

By W. CLENDENIN, M. D., Cin., O.

As our thoughts are something which belongs to ourselves, and actions of our own minds, free thought and free expression of opinion might, properly enough, be regarded as the inailenable right of all mankind; yet, it is only in the United States where the right of opinion and free speech are tolerated to the fullest extent. Here every one thinks for himself, and openly expresses his thoughts without regard to others, or to the State. The humblest and the ignorant, as well as the learned and those in high places, alike express their opinions as to the orthodoxy of the Pan Presbyterian sermons and the transactions of the late Papal Conclave. The turn-key of the jail, the crowd of idle men who infest the corridors of the Court House, the boy who sweeps the court room, and the bar and press alike, animadvert upon his charge to the jury of the most learned judge. It is, therefore, very apparent that the marked characteristics of the race consists in presuming that every one is at least capable, if not directly called upon, to instruct others how they ought to transact their own business.

One Way in which Doctors are Never Slighted.

In this one respect the medical profession is never slighted. For if there is any one subject which every man and woman does thoroughly understand, it is the cure of diseases; and let me here remind you, young gentlemen, who are now about to engage in the practice of your profession, that, though you hold in your hands the proof of the completion of the curriculum of your studies, you will very often have to quietly, if not patiently, sit and listen to the opinion which your patient or his nurse entertain. The fact that you are a doctor will make of you a target for all those people who think they know a great deal more about the nature and cure of diseases than you do, and who will feel in honor bound to tell you what medicines they administered when James was sick, and when Maria was a baby, and when Sammy had the sore eyes, and when Johnny had the measles, and when Susy 'most cut her toe off, and so on, and so on, 'til you are out of sight and hearing.

Incredulous People.

People generally are skeptical concerning the opinion of others, while they have the most implicit confidence in their own. This species of skepticism manifests itself in many ways, and is susceptible of the fullest illustration. Did ever a Legislature ask the opinion or advice of the physicians of the State as to the expediency or necessity of enacting laws for the promotion of the health of its inhabitants? Town Councils and Boards of Aldermen *usually* have their own opinions as to what measures are most advantageous for the relief of the indigent sick; and, moreover, they have sufficient confidence in their own knowledge of sanitary science to decide upon the location, as well as to direct the construction of hospitals, and asylums, etc. Even our Congressmen have recently exhibited such an astonishing confidence in the anatomical knowledge and medical skill of recruiting sergeants, that they do not consider the services of medical officers necessary to decide as to the fitness and physical qualifications of recruits, for the duties of soldiers.

There is one class of individuals, however, who appear to know more than any other about the nature of epidemic diseases, methods of cure, medicines, and especially just what is required to constitute a first class physician. This is a large and somewhat influential class; and one that is composed almost exclusively of newspaper writers. A newspaper man never questions his own abilities nor doubts the correctness of his own opinions, particularly on medical and financial questions. Now with many persons a sort of mystical goodness and power is attached to the number seven; hence it is that we have heard so much about the seven stars, the seven wise men, the seven leagued boots, the seven wonders of the world, the seven sleepers, to which is added the seventh son. The seventh son is supposed to have something peculiar about him. This imputed peculiarity is a healing power, a sort of intuitive knowledge of diseases and their cure. But the newspaper writer imputes to himself greater knowledge of the healing art than even the seventh son of the seventh son, for he decides medico-legal questions of the greatest importance with the stroke of his pen; he discloses to his readers the mysteries of the sciences, and of the healing art; and, moreover, he points out the true course to be pursued for advancing the science and art of medicine; he does even more, he claims to hold in his hand the destiny of the physician. It must, however, be admitted that the newspaper man is even more generous than learned. He is ever ready, *in his own way*, to aid the physician with his opinions and advice; indeed, he is sometimes a little officious in this direction; but, like a faithful friend, he is ever on the alert to detect, and ready to point out, the doctor's blunders.

Religious versus Secular Newspapers.

But even at the risk of being considered partial, I must, in justice say, that the publishers of some religious newspapers are entitled to special consideration at the hands of the medical profession, for their untiring efforts to bring to the knowledge of their readers, what they evidently consider valuable information relating to the cure of diseases. Their columns contain notices of the most reliable doctors and, and of the *sure cures* for cancer, consumption, senility, and other incurable diseases; nor do they fail to publish advertisements of such remedies as are designed to do away with the burdens and anxieties of maternity. Hence, the proprietors of *specifics* for the cure of certain diseases, and of those "valuable medicines which every family should always keep in the house," appreciating the goodness and self-sacrificing spirit of these publishers, advertise more extensively in religious than in secular newspapers. Now, the distinction between advertising in a religious, in contradistinction from secular newspapers, is this: that in the former there is a certain moral, not to say religious, influence surrounding the business. The very class of men engaged in the publication of religious papers is in the account of "influence" a sort of proof—certainly a strong presumption—that everything they convey to the public is as it were sanctioned. Now, on the other hand, the influence the secular papers maintain is purely commercial. The medical charlatan appreciates this difference; he knows the influence of religious papers among church-going people. In this way religious newspapers have contributed largely to enrich proprietors and venders of patent medicines. They have aided in the introduction of trashy medical literature, and in the creation of erroneous and dangerous medical opinions amongst the people.

Physicians Responsible for the Erroneous Opinions of the People.

A study of the history of the medical opinions of the people reveals the fact that some of the most absurd, as well as some of the most injurious notions concerning diseases and their cures, have had their origin in what doctors are pleased to call Scientific Medicine. The practice of bleeding for the purpose of resuscitating persons rendered unconscious by falls or blows, is hardly yet obsolete as a strictly professional remedy. It is only a few years since I saw an army surgeon trying to bleed a soldier, who had but a moment before been knocked senseless by a kicking mule. A bystander, who questioned the propriety of blood-letting in such a case, suggested that the doctor had better bleed the mule instead of the injured man. An equally useless, if not hurtful, custom is that of "getting bled" in the Spring of the year, or of taking some kind of evacuant medicine, so as to eradicate the stagnant humors from the blood, which might have been produced by the cold of the Winter, and thus prevent an attack of disease in the ensuing Summer.

The Ideas which People Entertain of Disease, Illustrated by the Means Adopted for their Cure.

Non-medical persons, even educated persons, entertain singular ideas of the nature of disease. Some regard disease as "a devil to be cast out," or as an evil spirit that at times must needs be appeased. This idea led to the employment of medical incantations, or charms, which in the cure of disease operates through the medium of the imagination. This is a very ancient idea, but one that is still believed and practiced by many good, but deluded people. Probably no method that has ever been devised for the relief of human suffering has had firmer hold on the common mind than that of "charms," or incantations. From the earliest antiquity we find charms a part of medical practice. Homer in his Odyssey, introduces the sons of Autolycus charming to stanch blood. This is still the chief method of cure in Egypt and India. The Northmen composed Rhunic rhymes to charm away disease; and with the Norwegians and Icelanders verse or song was supposed to be all-powerful; hence, thus writes one of their poets: "I know a song by which I can soften and enchant the armies of my enemies, and render their weapons harmless." At the present time, the Caffre rain-maker, the Cingalese devil-dancer, and the Indian-sorcerer, with their charms and chants, are enabled to work such changes in the bodies of their countrymen as to defy the combined influence of epidemic and contagion. A stone, or ring, with a history real or supposed, a verse of the Koran or Bible, a piece of brimstone, or a lump of asafœtida, sewn up in a piece of cloth; these worn on some part of the body, have given such assurances of safety as to render the individual fearless in the midst of the most terrible scourges. "If the Arabs have still their talisman, and the Indians their amulets, Western nations, who claim a much higher civilization, have not ceased to vaunt their cures, and other miracles effected by their relics, their holy wells and water. How many virtues were at one time attributed to king's touch! How many more are at the present time believed to attach to the touch of relics—the bones, rags, and other rattle-traps of saints!"

The method of cure introduced and practiced by the Egyptian physicians and priests—by incantations took another form, more fashionable if not more rational, about one hundred years ago, when Dr. Frederic Mesmer cheated Maxmillian Hell out of his idea of curing diseases with the magnet, and announced to the world that he did not cure his patients by *mineral* magnetism but by *animal* magnetism, which peculiar agent he developed in his own body. Animal magnetism, from "waking magnetism" to the sixth stage or "perfect clairvoyance" and "spirit rappings," is chiefly observed in nervous, highly excitable, hysterical females. The alleged powers of clairvoyants, such as reading the thoughts of all persons about them, giving an account of what is taking place at a distance, seeing through the bodies of others placed in magnetic connection with them, and describing the operations of healthy and diseased organs, curing diseases, etc., etc. All these results, like the incantations of the Egyptians, are effected through the medium of the imagination. And, thus too, thousands of people firmly believe that "the anointing of the weapon that maketh the wound will heal the wound itself."

Are Diseases Cured by taking Medicines?

There is a deep conviction in the minds of most people that the sick recover *because they take some kind of medicine.* When an individual recovers under a certain remedy, or a certain course of treatment, such recovery is naturally enough ascribed to that remedy or treatment. The fact is that Nature tends, in a great majority of cases, to repair injuries and cure diseases. This instinctive healing power, which doctors call the *Vis Medicatrix Naturæ*, is the secret of much of the success which is boasted of when certain remedies are used, or when a particular method of treatment has been adopted. It does not necessarily follow that because a patient recovers under a certain remedy, that the recovery is due to that agent. There are many diseases which admit of a cure under a suitable diet and regimen. Hundreds, yea thousands, have been restored to health by giving up sedentary occupations for out-door employment; so that the instinctive healing power of the body, when aided by a proper observance of the laws of Hygiene, is capable of curing very many diseases without the assistance of any medicine whatever.

I cannot omit to make the following quotation from a work which I would most heartily commend to all my hearers, entitled, "Health; its Friends and its Foes," whose author was my most revered friend, the late Professor R. D. Mussey, who was mainly instrumental in founding the Miami Medical College. Professor Mussey's view is pertitent and to the point in this connection. He remarks that, "Even among the educated in other departments of knowledge, so great ignorance prevails in this, that the invalid can easily believe himself to have derived benefit from the prolonged use of large doses of evacuant medicines, which in fact have done him real and perhaps permanent injury; the same invalid, be he M D., D.D., or L.L.D., released for a few weeks from confinement, care, and hard study, and taking the benefit of a journey among friends, comes with all his heart to the conclusion that he has been cured of his prostration by a pellet, urged upon him by a "personal friend," containing a medicine so attenuated or sub-divided by being mixed with sugar that, in order to get a single grain of it into his stomach, he must eat a lump of sugar large enough to fill the orbit of Saturn."

I would not fail to make mention of those, perhaps in the minority, who think that medicines are useless, and perhaps positively hurtful to the body, and hence they discard them altogether, and rely upon the inherent power of the organism for a cure of their diseases. As already remarked, there are diseases which get well without the aid of medicines; but there are other diseases which *require* medicines to allay pain, to lessen the duration of suffering, and to *save life*. Every physician's experience proves this to be so. There are many diseases, which without the use of proper medicines, continue with little or no abatement for weeks, months, and even years, but which yield to suitable treatment in a few days. Those diseases which run a definite course as to time, are rendered mild and tractable, and their tendency to a fatal termination often averted by judicious and timely medical treatment. In those terribly painful and incurable maladies, such as cancers, the sufferings of the afflicted cannot be mitigated nor life made endurable, excepting by the use of medicines. In such cases anodynes prove the greatest blessing the Creator has bestowed upon suffering humanity.

Some people, and especially, some mothers are so cautions, and withal so tender hearted, that they will not administer to their children what they call "strong medicines," or "doctor's stuff," but these same kind hearted mothers dose their children, without hesitation and without stint, with Godfrey's Cordial, Perry Davis' Pain Killer, and Mrs. Winslow's Soothing Syrup. Patent Medicines are extensively used by very many persons, and they are always administered without any knowledge of their properties, or of the nature of the symptoms which they are expected to relieve. Those mothers who prescribe for their own children usually very promptly decide that the sick baby has either worms or colic, and that in any case a dose of vermifuge is the very best thing for the relief of the little sufferers. So very common is this practice that there is no doubt that scores of infants are destroyed in this city by the various vermifuges that are advertised; and it is equally certain that many mothers are permanently relieved of all further care of their children by the magical effects of Mrs. Winslow's Soothing Syrup.

Alcoholic Liquors as Medicines.

Of all the agents suggested for the cure of our bodily ills, none have been received with so much favor, none so extensively used and so often misused, as alcohol in its various forms of wine, beer, ale, whisky, rum, etc., etc. It was somehow suggested that the daily use of beverages containing alcohol prevented the destruction—the wasting—of the tissues of the body; that under the use of such beverages the enfeebled body grew stronger, and the wasted tissues were restored. This opinion led to the use of alcoholic stimulants as a remedy for wasting diseases generally, and especially for consumption, and not only for the *cure*, but also as a preventive of that universal scourge of mankind. It is estimated that about two-sevenths of all the deaths throughout the civilized world are caused by consumption, and hence the importance of the subject of its prevention and cure.

It is not proposed to discuss the various opinions entertained in reference to the uses of alcoholic liquors, but merely to present what is regarded as the status of this question among eminently scientific men at home and abroad. An impartial analysis of the latest and most reliable of the very numerous scientific opinions on the effects which the habitual use of liquors containing alcohol exerts on the human organism, shows certain points to have been established and admitted, and which may be briefly summarized:

1st. Alcohol does not contain any properties or qualities of the foods; and it is incapable of being transformed into any of them. Cameron, (Manual of Hygiene), declares that "there is nothing in alcohol with which any part of the body can be nourished." The International Medical Congress, which held its last session at Philadelphia in 1876, and which, it is well known, fairly represented the best medical talent in the world, concluded, after a thorough consideration of the subject, (as embodied in a paper presented by Dr. Ezra Hunt, of our own country), that alcohol has no value as a food; and that it does not repair the waste of tissues which occurs in disease.

2nd. According to Duray, Smith, Perrin, and other equally eminent authors, alcohol taken into the stomach in any form or combination, (as in beer, ale, wine, whisky, etc.), passes through the system *unchanged* in any way, and that it appears in the breath, the perspiration, and other excretions of the body; and therefore, it is neither oxodized nor digested, nor in any way appropriated to the nourishment of the body.

3rd. Alcoholic liquors directly and seriously impair the functions of all the digestive organs, and directly perverts the nutritive processes. Dr. Virchow has fully confirmed Dr. Bocker's experiments which prove that, "Alcohol poisons the blood, arrests the development, as well as hastens the decay of the red corpuscles (of the blood). The blood discs lose their vitality." "This devitalized condition of the nutritive fluid," says Dr. Munroe, (The Physiological Action of Alcohol), "is probably the first step to the deterioration of the tissues which it feeds." The blood is transformed into a kind of fatty liquid. The fatty matter of the blood of the drunkard, as shown by the eminent French chemist, Lecanu, is *forty times* in excess of the ordinary quantity. This fatty degeneration of the blood, in the opinion of Dr. T. K. Chambers, Honorary Physician to the Prince of Wales, "is the basis of three quarters of the chronic illnesses which the medical man has to treat."

4th. They cause irrepairable diseases of the structure of the various organs of the body, including the brain and the nerves. Those atoms which during health are thrown out of the body, as being of no further use to it, under the influence of alcoholic stimulants are retained in the liver, the heart, and the brain, thus causing apoplexy, dropsy, palsy, and other incurable diseases.

5th. The baneful effects of stimulating beverages are not limited to the individuals who use them, for they incur far greater evils on posterity than is observed in the drunkard himself, viz: Epilepsy, idiocy, and congenital imbecility; and "there is no disease in which the hereditary influences are so fatally characteristic as in drunkenness.

6th. When absorbed into the blood in any considerable quantity, alcoholic liquors instead of increasing positively diminish the natural temperature of the body.

7th. It greatly diminishes the power to sustain injuries by disease or accident. As shown by Dr. F. R. Lees, F.S.A., in a Prize Essay on the Liquor Traffic, "Drink has the characteristic of predisposing to attacks of disease and preparing the way for the winged pestilence."

8th. And yet it must be admitted that there are some scientific men who still entertain the opinion, that when used within certain limits—one ounce or an ounce and a half a day to a healthy man—stimulating liquors impart new force to the muscular, nervous, and nutritive organs.

With these facts before us, now let us turn and note the causes of consumption, as summarized by Ruehle, one of the very latest and distinguished writers on practical medicine. He says "consumption is caused by everything which impairs the nourishment of the body, which induces poverty of the blood or depresses the nervous system." This is precisely what scientific research has demonstrated to be the result of the habitual use of beverages containing alcohol. Let me ask then in the words of another, "Can a blood thus vitiated, and bearing in its tide the very polluting and destroying substance itself, minister to and build up healthy organs?" Can an agent which exerts such deleterious effects upon the organism as has been shown to result from the use of alcohol prevent or cure diseases of the lungs? The cure of consumption according to this idea is to produce diseases of the digestive and nutritive organs, the brain, and the nervous system, with the vain hope that the lungs may be saved. According to this idea a person threatened with, and predisposed to consumption, is advised to drink whisky daily for the purpose of preventing its development. The prescription is faithfully followed, but it so turns out that in the meantime his organism becomes so much disordered by the constant use of the spirits, that death ensues as a consequence and ends the struggle, while his lungs are, as yet, comparatively sound. The cure is worse than the disease! Such, however, is the result in thousands of instances of those predisposed to or inheriting consumption, and who by an opposite course with the aid of proper food and regimen, and suitable out-door occupation, might have kept the disease at bay and lived in comparative health the average life time.

Going Abroad for Health.

Traveling is an admirable remedy in many forms of disease. The mind is thus abstracted from the cares and perplexities of business; a new mode of life is forced upon the invalid, and more active and varied exercise is implied. The increase of the vigor which the constitution acquires by a change of climate is often very remarkable. Dr. Rush remarks that a Frenchman outlives an Englishman in England; that a Hollander prolongs his life by removing to the Cape of Good Hope; and that a Portuguese gains fifteen to twenty years by removing to Brazil. This may explain why foreigners often outlive Americans in America.

The vast increase in the number of Summer resorts and watering places of late years, and the deserted state of our cities during the hot months, are sufficient proofs of the increasing conviction among the public in general, that for the preservation of health, it is necessary to change the relaxing air of the city for the more pure and invigorating air of the country. But while the beneficial effects of change of climate are often apparent, it is equally true that those localities which are most popular, and generally considered most salubrious, are not adapted to all diseases, or to all persons suffering from the same disease Hence the disappointment often experienced by the sick after long and fatigueing journeys; and hence too, the great difference of opinion, even among physicians, as to a choice of climate. How often are sick persons sent to Europe, to the Islands of the sea, to the Pacific coast, to Canada, to the Gulf States, to the mountains, and to the seashore, only to realize at last that a change of climate did them no good whatever. Minnesota was but yesterday considered as possessing the best climate in the United States for valetudinarians; now it is Colorado and California, or Florida, Cuba, or the Bahamas; tomorrow, public opinion and fashion may determine upon some other district, for every year brings accounts of some new and favored locality.

The progress of consumption is but little modified by temperature alone. There is a lower ratio of this affection in the North and Northwest than throughout the South; and a uniformly low temperature is preferable to a uniformly high temperature. But the most important atmospheric condition for a consumptive is DRYNESS. Probably twice or thrice as many persons die of consumption in wet as in dry districts of country. Dr. Bowditch, who has probably given this subject a more careful study than any other physician of his age, says that "moisture of the soil is the only known characteristic that is connected with the consumptive breeding district." In twelve of the larger towns of England the subsoil was dried by a system of drains and culverts, the result has been that the mortality from consumption has been reduced fifty per cent. While in other towns where the subsoil remained in its undrained state there was no reduction in the death rate from the disease. From the facts last cited we learn another most important truth, and one which should impress itself upon the mind of every individual, especially those who have any predisposition to consumption, viz: that there is no chronic disease which can be so certainly prevented, as well as controlled in its development, as consumption.

Has Our Present Social System Shortened Human Life, and Rendered Mankind More Obnoxious to Disease?

One of the most common and popular errors of the age is, that in consequence of the prejudicial influence of our present social state, mankind are weaker and more fragile than they were once; that they are liable to many more dangers now than formerly; and that diseases, in particular, have increased both in number and severity. We are disposed to believe that a life of perfect freedom —a natural life, as it is called—seems to give us assurance that close intercourse with nature is the secret of health, the panacea for the ills of earthly existence; and that separation from her has sickness and infirmity for its consequence. This is an old idea, or at least one of the poets of the olden time tells us that—

> "Once there dwelt on earth a race of men,
> Exempt from evil, from the need of toil,
> And eke from each infirmity that brings
> Untimely age on us."

A more careful examination of the question shows that this opinion is incorrect and wholy at variance with history. The influence of civilization on the physical state of man has been just the opposite of that which is commonly ascribed to it. A large portion of the causes of disease with which she has been charged are diminished in their influence, and in many cases made altogether inoperative. The population of the countries of Europe has long been progressively on the increase, whilst the relative mortality is as certainly on the decline. In the year 1700 the mortality of England and Wales was one in every thirty-nine of the inhabitants; in 1830, with a vastly increased population, it was only one in fifty-eight. Dr. Farr, in a recent letter to the Registrar General on this subject, states that the mortality in London, in the latter half of the seventeenth century was at the rate of eighty per thousand, fifty per thousand in the eighteenth century, and only twenty-four per thousand at the present day. A corresponding ratio of decrease is apparant in other countries. Caspar states that in Berlin forty-eight per thousand fewer now die in infancy than used to eighty years ago, and that twenty-seven per thousand more reach old age now than formerly. The vital statistics of the city of Geneva, and the Carlisle tables prove that the duration of human life has been at least doubled during the last three centuries. With but few exceptions the number of births has considerably surpassed that of the deaths. Formerly the *deaths* of the members of the community was the source of professional income, now it is their *birth*. Juno Lucina is the true patron goddess of the medical profession in these days, not Apollo in his ire, and twanging his silver bow.

The men of this age are larger, stronger, healthier, and longer-lived than they were three centuries ago. As a proof of this we have only to mention the fact that the armor preserved in the Tower of London is too small to be worn by the modern Englishmen. The women of to-day, and especially of our own country, are of finer stature, more robust, better developed, and altogether more graceful and elegant in form, and therefore better adapted for the high and important duties of mothers than at any previous age in the world's history.

If we recur to the narrative of the fourteenth, fifteenth and sixteenth centuries, and contrast the pictures which they present with those we have now before our eyes, we may form some idea of the change that has taken place. We find that the houses of that period were mean and squalid, "generally built of clay, thatched with straw, without chimneys, the windows without glass, the floor made of loam and strewed with rushes." Every town was a fortress, and the inhabitants were compelled to live in a state of siege prepared at all times to resist attacks, from which they were never secure. Sepulture was in the midst of the dwellings of the living, and often in the buildings dedicated to the service of the Creator. This condition of life was rendered still more deplorable by the pressure of the twofold privation—want of sufficient food and fuel. Fresh vegetables, such as potatoes, turnips, cabbage, apples, etc., were almost unknown. Southwood Smith remarks that, at the period referred to, "the food supply in England was so scanty that every year of scarcity became a year of famine, and such years, one out of ten, occured for ages with great regularity, and often equalled in their terrible results the worst famines of antiquity." Added to these terrible privations were the widespread calamitous epidemics which swept over Europe causing a destruction of human life that was appalling to contemplate, and of which we at this age have no conception. The plague traveled over the Old World, from China to Greenland, and destroyed within a space of four years one-fourth part of the population of Europe. It ravaged England for more than twelve centuries. During the year 1665 over one hundred thousand persons died of this disease in London In Venice a similar number died, and in Paris at least fifty thousand; and in many places "in France not more than two out of twenty of the inhabitants were left alive." This fearful scourge has disappeared, and it is not now known out of Egypt.

That terrible disease, the "Sweating Sickness," which prevailed in England in the sixteenth century, and though it remained but a few days in one place, one-fourth of the inhabitants often perished. This disease is now unknown except by name.

"Petechial," or Jail Fever, which according to contemporary writers, was the fatal scourge of the ship, the prison, the hospital, the school, and every place in which any considerable number of persons was assembled; this too, is known only in history.

It may not be generally known that Intermittent Fever—Ague—was one of the most terrible diseases of the fifteenth centuries, and was sometimes so mortal that the living could hardly bury the dead.

Scanty and unwholesome food in Mediæval, and even later periods, was one of the most fruitful causes of diseases, even the names of some of which are unknown, or forgotten. Scurvy used to decimate the navies of the world and render long voyages almost impossible. Two hundred years ago this was among the most frequent diseases in London, Paris, and other cities of Europe. Of this disease doctors now have but little practical knowledge.

During the latter part of the eighteenth century the annual deaths from Small-pox in England and Wales, amounted to thirty-eight thousand in a population of eight millions. The official returns of the Registrar General show that this same disease at the present time has been reduced by vaccination to less than eight thousand per annum, so that the absolute mortality from Small-pox in England and Wales, is less by thirty thousand a year than it was three quarters of a century ago. Vaccination has everywhere proven an almost infallible preventive of this much dreaded disease. It has been well said that the lancet of Jenner has saved more lives than the sword of Napoleon destroyed. 'Til Jenner lived, one-twelfth of the human family were swept away by small-pox, and a much larger proportion was left bereft of sight, or shattered in constitution, and hideously scarred, as evidences of its destructive power. Vaccination is, indeed, a brilliant illustration of the advantages of civilization; it is one of the precious fruits that spring from human thought and inquiry. The health and life of millions, without sacrifice at the shrine of pain, and without denial, are assured through its means. It is, therefore, the neglect of vaccination that renders the occurrence of considerable epidemics of small-pox possible; and it is by vaccination alone that the spread of this disease can be prevented.

Those moral epidemics of the seventeenth century—the "Dancing Mania," and the burning of innocent people under the name of witches—which were more dreadful than the physical, and which so fully illustrate the close alliance between credulity and cruelty, are now unknown; but the prejudice against vaccination still finds adherents. There are still some who argue, as did Dr. Rowley, and others of his kind, in the days of Jenner (1806), that "small-pox is a visitation from God," and heaven ordained; while vaccination is a daring and profane violation of our holy religion; and that "it is impious and profane thus to wrest out of the hands of the Almighty the Divine dispensation of Providence.

Thus do Leprosy, Plague, Small-pox, Scurvy, and other diseases vouch for the beneficial influence of our social improvement. Civilization not only does not add to the numbers, or increase the severity of diseases, but its effect is to lessen their force and diminish their numbers. In the same proportion as the arts and sciences, as morals and true refinement advance and approach perfection, are the means multiplied by which human life is assured against enemies from within and without.

Influences of the Cultivation of the Higher Powers in the Production of Nervous Diseases.

It has been imagined by many that literary occupations are positively injurious to health. Pinel says, that "men of exalted intellect perish by their brains, and such is the noble end of those whose genius procures for them that immortality, which so many ardently desire." Dr. Madden, (Infirmities of Genius), gives a list of distinguished persons "who have fallen victims to excessive mental application, by paralysis or apoplexy." But a careful examination of Dr. Madden's list of "Martyrs to Literary Glory," shows that many of the persons he named were not severe students, while a considerable number of them died from other causes than those assigned by Madden. Blumenbach and other distinguished professors in celebrated universities in Europe, affirm that they have never known an instance of any youth falling a victim to severe study. Eichhorn, the philologist and historian, asserts "that no one ever died of hard study." He considers such an idea preposterous, and adds that "a man may fret himself to death over his books, or anywhere else, but literary application would tend to diffuse cheerfulness, and rather prolong than shorten the life of the infirm." Biographical history, indeed, furnishes very conclusive proof that literary men, as a class, attain as high a degree of longevity as those of any other vocation. The most distinguished natural and moral philosophers, sculptors, painters, and authors, lived to an advanced age. Newton, Franklin, Herschell, Buffon, Halley, Leeuenhœk, and Whiston were octogenarians; Bacon and Galileo died at the age of seventy-eight years; while LaPlace, Linnæus, Copernicus, Leibnitz, and many others, had attained their full three score and ten.

Literary women are equally long lived. A London Quarterly gives a list of twenty female authors whose ages, at death averaged seventy-one and a half years. So that the pursuit of letters does not necessarily induce infirmities of body or mind; and hence intelligence is not only synonymous with moral power, but also with bodily health.

Modern Life and Insanity.

Whether the number of insane persons is actually greater now than it was in former times cannot be precisely ascertained. There are some reasons for supposing such is the case. The great increase in the number and capacity of asylums for the reception of the idiotic and insane, would appear to indicate that this class of sufferers has greatly increased in modern times. This increase in the number of asylums is, however, accounted for by the improved treatment which this unfortunate class of people now receive. It is not long since those who were so unfortunate as to become insane were almost always concealed in some darkened and secluded apartment of the family residence—probably the garret or cellar. Now, such patients are almost invariably placed in an asylum. The attention now paid to the disease, and the provision made for the comfort and treatment of the inmates, does undoubtedly prolong their lives, and thus the number is apparently increased.

The statistics of the lunatic asylums of Europe and those of our own country, show that the majority of lunatics undoubtedly belong to the pauper population. Dr. Tuke remarks, in explanation of this fact, that "the absence of rational employment of the mental powers may lead to debasing habits and to the indulgence in vices especially favorable to insanity, less likely to attract a mind occupied with literary and scientific pursuits." This same distinguished alienist and author further remarks, that "it is constantly forgotten that while there is nothing better than true civilization, there is something worse than the condition of certain savages, and that almost anything is better than that stratum of civilized society which is squalid, and drunken, and sensual; cursed with whatever of evil the ingenuity of civilized man has invented, but not blessed with the counteracting advantages of civilization." Teuch (Medical Statistics of Insanity), observes that it is not culture, but half culture, that has a pernicious influence upon the mind. The more numerous and the better the educational institutions of a country are, the less numerous are the insane. We may, therefore, conclude that it is not intense application of the higher faculties that overthrows the mind, but passion and the changing incidents of fortune. It is a pseudo-civilization that is to blame. The cultivation of the higher powers is in no wise, in itself and necessarily, coupled with aught that is pernicious.

That mental culture is alone injurious to the body, which proceeds without regard to time, or means, or measure.

And now, gentlemen, I must say, farewell! But in conclusion, there are a few points which I desire to impress upon your minds, and which I hope may serve, in some measure, to guide you through the intricacies of professional and social life. Success in your vocation, as in others, will depend upon the spirit which is in you, and by which you are actuated. If you have a proper appreciation of the dignity and importance of your profession; if you have a just estimate of yourselves, and to the community in which you live, you will reap a just recompense of reward. A just appreciation of your profession requires honesty of purpose, truth, fidelity, constancy, and a zealous advocacy of all that is pure and good. A proper appreciation of yourselves requires true manliness, gentlemanly deportment, rectitude of character, and a firm belief in the over-ruling providence of the Creator. Be diligent in business, and in study, for idleness is the root of all evil. Fortune may take the weak under her protection, but men of sense are left to their industry.

When you get a start in life; when you begin to make eight to sixteen visits a day; do not put away your books, as do many young physicians, and rely entirely upon your own judgment, and talk confidently to your older professional brethren about *your* experience, but study your case, study every case; study its anatomy, physiology, and pathology, as well as the properties and uses of the remedies you prescribe. Be particularly careful of your language and deportment toward your professional brethren; and always truthfully regard the precepts of the Golden Rule. And thus will you escape many of the annoyances and trials of life, and live at peace with all men; and may your mid-days be unclouded, and your evenings calm. Farewell!

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Art. 7.—An Account of a Prolonged Prevalence of Scarlatina, with Anomolous Cases and Annotations.

By JOHN H. CLARK, M. D., Mechanicsburg, O.

Local Topography.

The town of Mechanicsburg, with a population of about seventeen hundred, is located mostly upon high grounds with a Southeastern slope, and is partly encircled by the Little Darby Creek. Within this locality, embracing Southeastern Champaign and adjacent portions of Clark, Madison and Union counties, the surface of the country is very varied. In an Eastwardly direction it is quite level, including a portion of the extensive Darby Plain. Westward it is much more rolling, the highest altitude between the Scioto river at Columbus and the Miami at Piqua, (about six hundred and fifty feet above low water at Cincinnati), is found but a few miles West of this place. The entire region is fertile and is largely in cultivation or pasturage, having left sufficient acreage in timber for all farm purposes, but no surplus forest. There is a bountiful supply of pure water from wells, springs and living branches. An effectual system of underground tiling for drainage is extensively in vogue. The bottom lands and valleys are alluvial with an occasional small marsh along the streams. The higher lands are yellow clay loam. Beds of sand and limestone are common upon both level and rolling lands. The citizens of the community in general are intellectual and pay more than average attention to home sanitary measures. The necessity for the foregoing brief description of locality will be apparent.

Diseases.

The usual diseases of this location are such as are incident to this latitude and climate, modified somewhat by malarial influences; and, as will be inferred from above, there is no known local cause existing as special factor in inducing a predisposition to an unusual prevalence of Scarlet Fever, or any of the zymotic diseases. And heretofore this district has been comparatively exempt from Scarlet Fever, the disease having never prevailed extensively.

Scarlatina.

However, in October, 1876, a few sporadic cases occurred, first in town and then soon in the neighborhood, increasing in certain localities until by the latter part of December of the same year, it had by gradual gradation become epidemic, and continued to prevail for perhaps four months, when it ceased to be so general and continued to abate until by the first of June 1877, again only sporadic cases, here and there, were met with. It continued to linger, and cases occurred in different neighborhoods, often entirely disconnected, through the Summer and Autumn up to November, when for a second time the cases were greatly increased in numbers and severity. By the first of January, 1878, this wave of increase had reached its acme and was soon on the decline, and, although at the present writing, February 6th, 1878, the disease still abides with us, the cases are so infrequent as to afford a lively hope of its cessation.

During the first three months, or more, of the prevalence of this malady, it was quite benign, all or nearly all of the cases during the time ending in recovery, but afterwards, as has been stated, assumed a more aggravated type. The disease has from time to time presented itself in all the various forms, from the mildest to the most malignant; some cases so mild as to recover with but little or no treatment, while others so intensely malignant as to rapidly carry the patient off by the severity of the shock, or by violent cerebral affection. One case, a robust little boy, died within twenty-six hours after the first indication of illness, from an overwhelming shock upon the nervous system, and others within forty-eight hours; the well directed and persevering efforts of the physician to assist nature in resisting the disease being of no avail; the patients dying, as it were, from the beginning of the attack. Yet, such extremely malignant cases have been the exception, and upon the whole the mortality has not been comparatively great, when calculated upon a basis of all treated--about nine per cent.

Proportionably the prevalence of disease has been greater in the country than in the village, nevertheless it has prevailed in town and in all sections of the country roundabout, regardless of dissimilarity of locations and surroundings, high or low, wet or dry, altitude and condition of soil having, apparently, but little influence upon its progress and severity; families residing upon the high and dry lands suffering alike with those in the valleys, and on the alluvial bottoms along the streams. Neither has sex or nationality exerted any influence. While the disease has been largely limited to childhood, the per cent. of cases among adults has been observably greater than usual, and it has been quite common for those who were in attendance upon the disease, if they escaped a well developed form, to have sore throat, *Scarlatina Faucium.*

Complications, Etc.

The usual complications, irregularities, intercurrent troubles and sequelæ, such as albumenuria with anasarca, coma and convulsions induced by uremia, pericarditis, diphtheria, acute articular rheumatism, otitis with purulent discharges, suppuration of the cervicle glands implicating the connective tissues, etc., were met with. One of the most important and frequent accompaniments was the renal affection known as acute Bright's disease, unless as has been claimed and seems plausible, we consider this *nephritis scarlatinosa* as the natural result of the same morbific cause to which is due the anginose condition of the throat, or the exanthema upon the surface of the body; that is a localization of the same pathological process upon the kidneys in the one case as is formed upon the skin, and in the throat in the others. Testing urine from an early period of the disease will generally show that the kidneys suffer from the commencement of the attack, and not merely from the period of desquamation, or as an intercurrent trouble, as generally supposed. The nephritic affection may be very mild—so mild as not to be detected—or very serious and aggravated. And appropriately here a case in point:

A girl, æt. eleven years, was attacked on the 30th of December last with scarlet fever, attended with emesis and diarrhœa. The latter proved intractable and continued during the course of the disease. The exanthema was intense and confluent, the angina severe, the inflammation extending from the tonsils and pharynx throughout the mouth and on the lips, and from the fauces to the nares, giving rise to a severe coryza; also, inflammation of the connective tissue of the neck, etc. At an early stage of the disease the urine diminished in quantity and became abnormal inquality, containing albumen, cylindrical casts and blood, thereby showing unquestionably that the nephritis had assumed the croupose form. This abnormal condition of the urine with constant diminution in the amount secreted, continued until the eleventh day, when the kidneys entirely failed in function; complete suppression continuing for three days, finally ending in death with convulsions from retained urinary elements. According to Dr. Steiner, this condition of things is the result of a purely mechanical cause, the accumulation of epithelial debris in the tubuli of the kidneys. This gives rise to the blood stasis in the parenchyma of the kidneys and ultimately leads to effusion.

Ætiology.

That Scarlatina is an infectious disease is established beyond peradventure; but the question, as to whether infection is always necessary or not, is still, to my mind at least, somewhat enigmatical, notwithstanding the strong affirmations of many justly eminent authors. From personal observation, if not theoretically, I will venture the opinion, that while as in general scarlet fever is the product of a specific morbid poison it may exceptionably, under certain favorable circumstances, be generated sproradically.

During the prevalence of the disease in this section for the last sixteen months, isolated cases, and not a few, have occurred, where from the closest observation there had been no exposure whatever, immediate or mediate, to the contagion. As stated there are cases occurring in which at least the probability of exposure to contagion is entirely precluded, in view of isolation; moreover, wherein it seems almost impossible to explain the origin of the disease in any other way than as a spontaneous development. And forsooth, is there any well grounded reason why scarlet fever may not be propagated independent of inoculation by any specific virus, with susceptible persons, by simple, complex, or combination of causes, as telluric, morbid atmospheric conditions influenced by temperature, moisture, decomposition, fermentation and others, the contagium vivium theory to the contrary notwithstanding.

It does not necessarily follow, inasmuch as scarlet fever may in general be diffused by a vitalized contagia, that this contagion is the only mode of originating the disease, and that as an exception spontaneous cases may not arise. From practical observation, the exclusive living principle theory cannot be sustained. It is claimed that putrefaction and fermentation are each due to the influence of living, growing and multiplying material; and that fermentation and infection are alike dependent upon living molecules. Therefore, while it is not claimed that all the diseases of infection are due to the organisms of fermentation, is it not quite agreeable to reason that in some complex favorable conditions the infection may be so produced, and the resulting spontaneous cases as a product possess all the necessary elements for reproduction.

Prophylactic.

Whereas, it is wholly conceded that scarlet fever is capable of being propagated and spread by its own proper germ derived from some preceding case, there can be no question as to the expediency of some manner of domestic quarantine, by which the disease may be circumscribed and limited, in many instances. Too much stress is not likely to be put upon the importance of using every precautionary measure to prevent the spread of the affection by means of its own specific virus. Not only by isolating cases as far as is practicable, but also, by scrupulously guarding against an importation of the principal of contagion, by various mediums. The atmosphere surrounding the scarlet fever patient being contaminated with germinal particles, from pulmonary and other effete exhalations capable of inoculating a healthy subject, it becomes evident that the disease may be transmitted by means of clothing and other exposed articles. However, with a little caution this is but a minimum danger, as this contagious effluvia is so evanescent that it is carried off and diffused with the outside atmosphere soon after leaving the sick room. But the maximum danger of conveying the disease by the so-called fomites, is by the fabric becoming contaminated with tangible particles from effected persons as the various secretions, desquamated particles, etc., containing the virus; hence the attending physician should always take care not to allow his clothing to become soiled, and to cleanse his hands well after having them in contact with his patient.

Recurrence.

As is the case with other contagious affections, as a rule scarlatina occurs only once during life, one attack fortifying the system against the return of the same, and it has been said that secondary and tertiary attacks, when they do occur, are of a mild type. I have met with but one secondary case in my own practice and that was normal in its course. However, two fatal cases in the practice of another physician here occurred with persons who were said to have had the disease six years prior in an unmistakable form.

Anomalous Cases.

Among the cases running an abnormal course, I will make brief mention of the following:

A child, aged four years, had a rather violent attack of the anginous form, but after the seventh day began to improve; the fever abated; diphtheritic condition of the throat began to subside; the exanthema faded; desquamation commenced and the patient continued in every way to improve until by the fifteenth day convalescence was well established and progressing; temperature and circulation normal; but little trace of the sore throat and glandular swelling remaining and desquamation advanced; but on the sixteenth day, without any assignable cause, fever recurred; the angina renewed itself; efflorescence returned and rapidly diffused over the entire person. The secondary symptoms were all more aggravated than in the first instance, and finally proved fatal at the end of the second fortnight.

Death in one case was the result of exhaustion caused from a supervening and protracted diarrhœa, accompanied with low fever, ending with the close of the fifth week. This might properly be classed as typhoid scarlatina. Post mortem examination was not had, but it is more than probable that there was lesion of the intestinal follicles and glands. Gastro-enteric trouble may unquestionably be caused often by the little patient's swallowing the acrid and excoriating secretions from the fauces as well as from a direct tendency, in certain cases, for the poison to spend a part of its force within the stomach and bowels. It is claimed by good authority that a close pathological relationship exists between scarlet and enteric fever.

One case of the fever became complicated with eryspelas, after beginning to convalesce, and died a few days after from blood poison.

Puerperal Complication.

Other sequences, complications and troubles might be mentioned in review, but I will only allude to the puerperal state. Dr. Thomas and other authors mention the gravity of this complication. Dr. Anderson, writing upon Scarlatina, says: "There is one condition in which the disease is almost invariably fatal; that is the puerperal state. No precaution ought then to be neglected; no precaution ought to be thought excessive which tends to prevent a woman from receiving the poison of scarlatina while pregnant or recently delivered." Dr. Aitken in this connection observes that "Fever (scarlet) during the pregnancy most certainly ends in abortion and death. If the woman be recently delivered the disease will be of the most malignant type, and almost always fatal."

Scarlatina, indeed, seems capable of co-existing in the system with all other morbid poisons, and it is potent that all complications, but more especially the puerperal, greatly augments the danger of the fever, and vice versa. The peculiar constitutional sensitiveness in the puerperal condition indicates a close affinity between scarlet and puerperal fever. As well as erysipelas, and doubtless much mischief may be done by exposing midwifery cases to diseases, the peculiar poison of which, induces blood disorder. Nor is it strange that in consequence of the condition under which the puerperal woman is placed, that she should be rendered especially susceptible to any infection, and that when thus attacked she should but feebly resist such additional constitutional disturbances. In my own practice, four cases of delivery occured while children in each of the respective families were having scarlet fever. One of the four mothers escaped without any affection whatever to interrupt her recovery. One had a modified form of scarlatina with severe sore throat and fever, known as *scarlatina sine exanthemate*, without other symptoms. One had an attack of *puerperal mania* superinduced by great fear and anxiety about herself and children. This psychological phenomena passed and she fully recovered in a few weeks; while the remaining one of the number, was, two days after delivery, violently attacked with scarlatina ushered in with rigors, followed by phlegmasia and died on the fifth day.

A case of accouchment likewise occurred in the practice of a neighboring physician under circumstances as above, with rapid fatal termination.

Affecting Animals.

It has been a mooted question, whether or not animals can have scarlet fever, but however rare, it must be conceded in the affirmation, for instance, the following case: In a family where the children were having the disease, a young house dog was allowed to remain most of the time in the sick room, and after due time for incubation, manifested illness, with fever and sore throat, swelling of the glands and nasal discharge accompanied by difficult swallowing, breathing, etc., followed in the regular course of time by general desquamation with the loss of much hair.

There was no complication, irregularity or sequela in this case; and I might add that the animal recovered independent of medical treatment.

ERRATA.—The reader is requested to correct the following errors in our last number: On page 140, (article on Transcendental Medicine), 5th line, for "and acids," read *antacids.* Also, on page 148, (article on Poisoning by Atropia Sulphate), 6th line, for "This occurred at half-past seven in the morning," read This occurred at half-past *eleven* in the morning.

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Editorial.

Shop Girls.

In the moving panorama of cities, amidst the multitudinous throng that crowds the streets as the evening hour of six o'clock rings out from church spire and factory cupola, it is interesting to watch the laborers of the day returning from work. In the kaleidoscopic changes that occur in this animated mass of humanity, we discover that each class of workers belongs to a special type. The rough, muscular and brawny laborer, with the healthy glow of color on his cheek, differs in type from the almost equally well developed mechanic, whose pale face and snow-white skin betokens lack of sunlight. In sharp contrast with these two types of workingmen we see the pallid, anæmic clerk, whose thin limbs, hollow chest and stooped shoulders are due to the constant leaning over the desk, want of muscular exercise and fresh air. We might go on and multiply our examples and describe the varied appearance of those occupied in the different trades, but this will suffice.

As with the nobler so with the weaker sex, for women, even in this blessed land of plenty, must drudge, struggle, and toil for their daily bread. Among the types of workingwomen the shop girl presents the most melancholy spectacle. Perhaps the fact that she is neater in appearance than her fellow-toilers awakens our sympathies, for there is an innate air of refinement about her that seems to say, "I have seen better days;" and what sadder picture can there be than that of a gentle woman forced to fight the rude battle of life? With men it is different; brought up and educated to the idea of working for a sustenance, they easily buffeted the waves of adverse fortune and soon float again on the high tide of prosperity. With women born and bred to ease and luxury, American women especially, this facing of misfortune is a difficult task; not only on account of a vital energy but likewise for nameless physiological reasons.

It may be pertinently objected to that all shop girls do not come from the better classes of our population, nevertheless the fact remains patent that the vast majority of these girls are qualified to fill higher social relations to society, if not by birth, at least by education. Of course no remedy save a Utopian one suggests itself, viewing the matter from a general standpoint. Work they must is only too evident. It seems strange in the meanwhile, that shop girls should be envied by the other workers of their own sex, factory girls, shoe binders, tailoresses, etc. Hard work, at best, is dispiriting to any woman, but the sorrows of the curse, "Thou shalt earn thy bread by the sweat of thy brow!" has never been more mournfully exemplified than in the case of the shop girl.

Other occupations followed by womankind allow a certain degree of physical and mental liberty. In the various trades one may chat, laugh, stir about, and even sing while at work. Not so with the shop girl; she alone is doomed to perpetual punishment; an automan as fixed in her place as a lay figure in a show window. Standing on her feet for ten hours a day, she is not expected to grow weary. Forced to maintain an almost absolute quietude, she is expected to be agreeable and cheerful in the presence of customers. Allowed an hour at noontime to hurriedly bolt a meal, she is expected to maintain her health and remain uncomplaining. Permitted to draw a scanty salary for her services, she is expected to expend two-thirds of it on dress, in order to present a neat personal appearance. Suspected of stealing should a sample of goods happen to be missing. Suspected of lying if she has an excuse for being a few moments late in the morning. Suspected of dishonorable actions if she is seen enjoying the Sabbath, her only day of rest, in innocent recreation. Suspected of bearing false witness if she tell the truth about her employers goods. Such are a few of the blessed privileges enjoyed by the shop girl. With Tom Hood we may well exclaim—

"Its O! to be a slave,
Along with the barbarous Turk;
Where woman has never a soul to save,
If this is Christian work."

But there is a still darker picture to be drawn regarding this unfortunate and persecuted class of women. Every physician practicing in the great city, is familiar with that insidious and dreadful disease, consumption. A disease which, while it carries off the best, the bravest, and the fairest of all classes, seems to have an especial predilection for shop girls. The malady is either inherited, or brought on by some strong predisposing cause. It may be averted oftimes in the former case by proper hygienic measures. In the latter instance it can always be prevented by the exercise of care and the avoidances of the predisposing causes. The habits of life forced on the shop girl are the very ones essential to the development of the disease. No wonder then that consumption numbers among its victims the larger proportion of this class of female workers. Sooner or later, want of proper exercise, want of fresh air and sunshine, want of healthful mental employment, want of properly assimilated food, produces the to be expected result. Nature takes its revenge and the germs of disease are implanted in the victim. A hard, dry cough supervenes; the eyes of the shop girl grow brighter; her cheek is tinged with a hectic flush; she becomes weaker and more emaciated from day to day; finally, she fails to appear at the store some morning; her place is easily filled. A few weeks later there is grief in some little household, and an aged mother mourns the loss of her darling, her sole support. A rounded hillock of freshly sodded earth, a few faded violets bedewed with tears, mark the last resting place of the poor shop girl, who with her white face turned Heavenwards, sleeps peacefully at last beneath the soft lovelight of the eternal stars.

The remedy for the prevention of "shop girls consumption," is in the hands of the woman of fashion. Has such a woman a heart? We think so. Velvets, laces and diamonds do not usually destroy a woman's sympathy for her own sex. Suppose the lady of fashion puts down her foot and says to the shop-keeper, "If you do not treat my sex with more kindness, I shall trade elsewhere. Don't make slaves of the girls in your employ!" This would have the desired effect. Shop-keeping brings wealth; wealth gives social position—social position founded on the graves of murdered women. We have foreign missions for the conversion of the savage who worships the golden idol; we have societies for the prevention of cruelty to animals; yet, with all our boasted civilization, we have no organization for the prevention of cruelty to women.

THE Annual Commencement Exercises of the Medical Colleges, of this city, were held during the last week of February.

The first to take place was the Cincinnati College of Medicine and Surgery, which was held on the evening of February 23rd, at Pike's Opera House. The large room was completely filled by the friends of the college and those interested in medical education. The degree of Doctor of Medicine was conferred upon thirty-two graduates; after which Dr. J. W. Underhill, Lecturer on Medical Jurisprudence, delivered a very able valedictory address, in which he discussed the laws preventing the supply of materials for dissections, the duty of physicians as private citizens, and the necessity of cremation as a sanitary measure. The exercises concluded with the benediction by Rev. C. W. Ketchum.

The year has been one of material prosperity to the college. The class has been large and the students gave satisfactory evidence of a better preliminary education than has been manifest in previous years.

The Miami Medical College was the next in order of time to hold its Commencement Exercises, which took place in Pike's Opera House, on the evening of February 26th. The occasion was exceedingly pleasant in character, the large room being completely filled. The graduating class numbered exactly half a hundred. The professors reporting a material increase in the number of students, who had taken a literary degree before entering on their medical studies. This augurs well for the future standing of the profession. Let the colleges all earnestly insist on a good preliminary education before permission is granted to matriculate, and a great advance will have been made towards the higher medical education that is demanded by the people, as well as the profession itself. Eliminate the unfit material at the very outset and more than half the work will be accomplished. The Faculty of the Miami Medical College deserve credit for their practical efforts in this direction. We are informed they rejected several applicants for matriculation who lacked a suitable preparatory education; also, that not all of those who were examined for a degree were fortunate in obtaining the coveted parchment.

After conferring the degrees, by Alex. McGuffey, Esq., President of the Board of Trustees, on the class, Dr. Comegys, a member of the first Faculty of the Miami College, delivered an appropriate address, in which he briefly reviewed the history of medical education in Cincinnati, and speaking at length on the relation of medicine to the people, showing the importance of advice from physicians in regard to matters of Sanitary legislation; arguing for the conference of plenary power for the reform of obvious abuses in sewerage, and other causes of neglect and violation of the plainest laws of health; that the question of temperance should be withdrawn from the theater of partisan politics, and the drunkard who is the victim of a disease should be brought under enlightened medical care. Subjected to isolation and obliged to labor, the taste for alcohol would be subdued, and the man would recover control of himself. The will would regain its former ascendency, and the conscience would be quickened into life. The advice of the physician would, also, restrain that excessive indulgence of the passions which is at this day the most fruitful source of brain diseases. It is not culture, or study, or exercise, that destroys the brain and produces insanity, but the uncontrolled indulgence of man's sensual instincts. This sin not only destroys the individual, but it weakens and gradually destroys the life of the nation. It was not the inroads of barbarians that ruined Rome, but the actual failure of the Roman race to reproduce itself. The vices of the nation gradually made it impossible to raise children to the support of the nation. The address was closed with a few encouraging remarks to the young men who had just graduated. Professor Clendenin delivered the valedictory address. See page 258. The addresses were both warmly received by the audience.

The Commencement Exercises of the Ohio Medical College were held in Pike's Opera House, on the evening of February 27th, when the people of Cincinnati again evinced their interest in medical education, and in the Ohio Medical College, by crowding the Opera House. The graduting class numbered one hundred and two; one of the largest classes that ever graduated from a Western Medical College, and rivaling the most prosperous institutions of the Eastern cities. The graduates were summoned to the stage in platoons, and received their diplomas from the hands of the Hon. Flamen Ball, President of the Board of Trustees, who concluded his agreeable labors with a brief and appropriate address. The award of prizes succeeded. The most notable event during the progress of this part of the programme was the enthusiasm awakened by the repeated successes of a young and brilliant scholar from Cincinnati, Mr. Charles Julius Funck. The announcement of the prizes was made by Prof. Seely, according to the list given below:

Prof. Forchheimer's prize of a set of apparatus for urinalysis, for the best oral examination in the Chemical Department, was awarded to Messrs. Charles Julius Funck, Cincinnati, and Charles Cluir, Springfield, Ohio, who were directed to draw lots on the stage. Mr. Funck was successful.

Prof. Seely's prize, gold medal for the best oral examination in Ophthalmology, was awarded to Charles Julius Funck, Cincinnati.

Prof. Dawson's prizes, gold medals, first, for the best bandaging, awarded to Wilson Saffin, Carthage, Ohio; second, for the best surgical drawing, to Fred. W. Schoener, Cincinnati.

Prof. Bartholow's prize, a case of instruments of precision, for the best oral examination in the Department of Theory and Practice of Medicine, awarded to W. E. Whitehead, Morris, Ind.

Prof. Whittaker's prize, a case of post mortem instruments, for the best oral examination in Physiology, awarded to Charles Julius Funck, Cincinnati.

Prof. Reamy's prize, for the best examination in Obstetrics and Diseases of Children, a case of obstetrical instruments, awarded to Daniel B. Warren, Oak Hills, Ohio.

Finally, the Faculty prize of $100, for excellence in all the departments at the final examination, was awarded to Charles Julius Funck.

The valedictory address of Prof. Samuel Nickles was a careful and eloquent review of the difficulties which obstruct the progress of the young physician toward success, and some practical instructions to the class as to their future course.

The Faculty and friends of the Ohio College certainly have reason to be proud of the success of this medical school. As every year a mark is made in the notch-stick of time, they see the college crowned with a degree of prosperity that is gratifying to behold.

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Review of Nervous Disorders and Insanity.

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(Concluded from January No. L. & O.)

THE NATURE AND PATHOLOGY OF GENERAL PARALYSIS.

In the Jan. number of the LANCET AND OBSERVER we considered to some extent the adhesions that are found in general paralysis; to many writers it seems strange that inflammatory action continues to such an extent and pus is not formed. Crichton Brown in the article we have cited says: "It is particularly instructive to notice that in chronic meningitis, the symptoms of which are sometimes almost identical with those of general paralysis, we have adhesions which would be distinguishable from those of general paralysis were it not that pus, which is never seen in general paralysis, is here seen in other regions of the encephalon. Is it not thus suggested that in general paralysis there is an inflammatory irritation of lower intensity than the suppurative, and ending in non-purulent products? Does it not seem probable that these adhesions, which, it is argued, are the most characteristic feature in its morbid anatomy, and which clearly depend, when present in other diseases, upon inflammatory action, here also depend upon an inflammatory process? May not differences in the character of that process, in its mode of origin and accompaniments, account for the differences seen in those adhesions as they occur in general paralysis and in other diseases, the two most remarkable differences between the adhesions in general paralysis and in chronic meningitis are that in the latter there are deposits of pus in their vicinity, which is not the case in general paralysis, and that the adhesions are widely diffused, while in general paralysis they are more isolated and scattered. The first difference betokens that the inflammatory process in general paralysis is less severe than in chronic meningitis, and that in fact it corresponds with a non-purulent catarrh of an epithelial surface; the second difference indicates that the inflammatory action starts in the cerebral matter and not in the membranes. The tendency of all inflammations and congestions beginning in the pia mater is to become widely diffused, while the tendency of those originating in the nervous substance is to confine themselves to small areas."

He says also there has been hyperæmia of certain districts which results from from over excitement of these cerebral centres, a dilatation of arteries, rise of temperature from increased flow of blood, etc.

Upon these points we have the views of many others, some of whom agree with them, some who do not.

First, then, to the alleged *dilatation* of blood vessels. Dr. E. L. Fox in his work upon the Pathological Anatomy of the Nervous centres says (p. 203): "*General Paralysis.*—The commencement of this disease, like some other forms of insanity, is connected with no lesion that can be recognized after death. Dr. Thompson's valuable observations with the Sphygmograph have been already referred to in Lecture vii. He proves that general paralysis of the insane may be presumed to be owing, to a considerable extent, to persistent spasm of the vessels, and that this spasm leads to change in the component elements of the vessels, especially in the muscular substance. It is only the secondary effects that we see *post mortem.*

"But what causes the spasm?

Observations such as these of Dr. Thompson are most important as carrying us one step further back towards the origin of the disease; but this origin is not yet reached. It is all hypothesis that blood in a particular state has some effect on the vaso-motor nerves that we call 'irritation,' and that this irritation causes spasm. We do not know for certain that the blood has anything to do with it. We have not the slightest idea of what irritation is. It is a convenient word by which to formulate our ignorance, and that is all.

"As far, therefore, as our present knowledge carries us, we find first this spasm of vessels; but we know that beyond this abnormal condition there is some thing on which this spasm depends. It is not unlikely, from the observations of Poincaré and Bonnet, that this lesion is to be found in disease of the cervical, and perhaps ganglia of the sympathetic.

"The recognizable lesions in general paralysis vary according to the intensity of the disease, the time at which death has occurred, and the portions of the nervous system affected. The great disagreement between observers is due to the fact that the post-mortem appearances are sequences of the original lesion, and also that in some cases this, in others that element of the disease is more strongly developed. The naked eye appearances are as follows, always remembering, as we must, that in no case can all the lesions mentioned be found:

"1. Great œdema of membranes; adhesions of the closest nature of the pia mater to the subjacent cortex; meningeal apoplexy; degeneration of the cerebral arteries, such degeneration being fatty only in some few cases; thickening and nodulation of the ependyma of the ventricles.

"2. Changes in the cortex; grayish-red softening most frequently found in the middle layer of the cortex, and proceeding later to induration. I presume it is this lesion that explains the frequent association of maniacal symptoms with general paralysis. Induration of the most superficial layer, which probably had been previously softened; atrophy of the whole brain; induration also of the white matter; dilatation of the ventricles.

"3. Induration and atrophy of the spinal cord, or of spots in it; on more minute examination, the vessels are seen to be dilated without any thickening of their coats; much hæmatoidine in the hyaline sheath all over the vessels; increase of connective tissue and destruction of nervous elements; the atrophied appearance depends partly on this destruction of the nervous elements, partly on the imperfect nutrition of the brain owing to the diseased vessels; this increase of the connective tissue is also found in the white substance, either diffused throughout or limited to certain portions."

Plate 15. p. 205. of this work shows miliary sclerosis in a case of general paralysis. Bonnet and Poincaré say there is never sclerosis of the encephalon. Fox says, fat granules and granule cells have also been observed in the posterior and lateral columns of the cord in general paralysis, but they seem to bear no relation to the clinical symptoms. They are *dependent upon fatty degeneration of the walls of the vessels*, and Dr. Huguenin gives them the excellent name of "the visible form of physiological death."

Here again we have pathological conditions, supposed to be due to change in the vessels,—facts which also implicate the sympathetic. On page 213 Fox says: "Sclerosis does exist in the brain in general paralysis." Can this be explained by disease of the Cortex, or of the vessels or shall we attribute all the sequences to disease of the sympathetic? If due to disease of the cortical substance why is not the sclerosis in some relation to it? How can we explain the fact that the sclerosis is in patches or points (*i. e.* may be *miliary*). The self-limiting that is apparent in these forms of sclerosis is explained by studying the physiology of the circulatory system that supplies the intimate cerebral structure. Rindfleisch sets forth this better than we can, hence we will give it in his words. He says: "The whole relation of parenchyma to vessels, their significance for each other, is a different one in the dura mater from what it is in the pia mater, different in the pia mater from what it is in the brain. The ordinary schema, that every organ receives its corresponding amount of arteries and veins, which *ramify in it* in to capillaries, suits properly only to the peripheral nerves. In the spinal cord, but still more in the brain, it appears to be the intention that only the smallest vessels, actually serving for nutrition and subject to no variations of calibre, penetrate into the nervous substance. Accordingly there exist in the brain and spinal marrow every where only *small nutritive territories*, from which results, for the hyperæmias and inflammations of the proper central organs, the double peculiarity that from local causes (for example traumatic) they have a tendency to limit themselves to a small space, and that they are produced in a certain diffusion, generally only in consequence of intense *functional* irritation (psychoses). On the contrary, in the pia mater we have an enormous amount of large vessels, beside a parenchyma scarcely needing nutrition, which, however, possesses wide spaces, which present the most favorable opportunities for taking up inflammatory products and for extending an inflammation."

So much for the condition of the blood-vessels and their distribution as explaining the sclerosis. As we have quoted, Thompson thinks these results due to *persistent spasm of the vessels.* This does not agree with the views of the majority, who think the changes due to dilatation of blood-vessels. The truth lies probably between the two. We know that there are attacks in the course of the disease characterized by their resemblance to epilepsy. That many cases progress by steps, as it were, each step being an epileptic seizure. At such times there is spasm of the vessels, but immediately afterwards there is dilatation. During these alternations of spasm and dilatation changes take place, referred to in the first portion of this article, in the walls of the vessels and connective tissue around them which brings about the alteration of nerve tissue, causing its degeneration, death, absorbtion or disappearance. Again, as to the result being due to persistent spasms—most authors agree that the most powerful causes that produce general paralysis are those which paralyze the sympathetic and dilate blood-vessels, as venerial excess, alcohol, tobacco, etc. It occurs as a rule with men in middle life when they are possessed of full vigor and unimpaired nutrition if on a level with the normal standard. In other words at the best period of a man's life, and in many instances, *to all appearances*, those who appear to be most vigorous. Hence we would infer a stability of nerve centre that would be the contrary of an irritable one that would be liable to produce spasm. Paralysis, however, is but a step beyond irritability and if it be true that spasm is the first condition, paralysis is but the exagerated influence of the cause and a second result. In the early stage of general paralysis there is generally depression, melancholia, inertia. This would agree with the pathological condition and it is when dilatation of vessels follows, a rush in the current, that the opposite state manifests itself—exaltation. It is probable that these two conditions determine the mental phenomena and give rise to the difference of opinion among writers, some of whom term general paralysis only such as manifest exaltation, and those who are melancholic, melancholia *with* paralysis. Whether the disease is primarily in the vaso motor system or not before the vessels of the brain and cord can be implicated this system must be influenced they having no other nervous supply. This system may be influenced at different points, in a different manner. Thus while spasm may be produced dilatation may result elsewhere *from the same cause.* As an example of this we called attention to the influence of a mustard plaster in unloading the brain—while the vessels of the part to which it is applied are paralysed and dilated those in which the brain contract. The same principle may explain why vessels in some parts of the brain are contracted and in others dilated, the condition of a nerve furnishing supply to the vessel in part determining this, and its relation to the cause.

It has long been recognized as a fact, *not however applied to this subject by any writer we have read,* that different tracts supplied by the same system of nerves may to a certain extent act differently and independent of each other. Eulenburg and Landois, and Schiff have demonstrated it. Contraction and dilatation may not be uniform. The first named gentleman in 1867 (Weiner Med. Wochenscrift, No. 60) in speaking of the functions of the sympathetic said: "Besides this phenomena of contraction depending on the muscles of the arteries, a second movement is observed in the blood-vessels furnished with muscles. *From time to time* one sees *the vessels of larger or smaller territories, gradually and entirely independently of the heart. beat, dilate and then contract.* This movement, discovered by Schiff, has for its object to furnish the organ concerned in which the vessels are distributed, now with a greater, and now with a less quantity of blood, as nutrition or external circumstances require." And as we may add as influenced by disease.

We have not space to go into a review of the whole physiology of the nervous system and circulation to explain our views, but if any one will take the trouble to examine the experiments made they will be sustained; that the same cause operating upon the same vessel will at different points produce different results, or results that differ in degree rather than in kind. We see no other way of explaining the difference in pathological conditions that are found in general paralysis. We make this statement supposing it to be granted by all that the condition of a blood-vessel, the quantity of blood it supplies to a great extent determines the temperature of a part and its nutrition; that the local disturbances of nutrition may be due to different degrees of disturbance of circulation. See the experiments of Claude Bernard, Brown-Sequard, Ludwig and Thiry, Liegeois, Budge, Wharton Jones, Lister, Czermak, Goltz, Cyon and many late articles in Foreign Journals. Upon the pathological conditions due to the sympathetic, Bartholow, Onimus and Viry and many others have thrown light by observations or the report of cases; and while these do not strictly apply to the point in question *directly* they do indirectly by showing better how disturbance in the sympathetic may be manifest. In other words there are very few phenomena that occur in any form of nervous or mental disease that are not manifest at some stage in one or another case of general paralysis, hence anything which throws light upon this system of nerves helps to explain the disease.

Second, we desire to consider other parts of the nervous system alleged to be the seat of the disease.

Magnan in his work entitled: *Recherches Sur Les Centres Nerveux Pathologique et Physiologique*, has a chapter devoted to Lesions of the Walls of the Ventricles and Subjacent parts in General Paralysis (*Des lesions des parois ventriculaires et des parties sousjacent dans la paralysie generale*). In the introduction to the book, he says: "The object of this chapter is to demonstrate that in general paralysis the inflammation is not localized simply at the periphery of the encephalon as a diffused perienecephalitis, but occupies with more or less energy the centre of the brain—the ventricular walls." He says, from these two vast foci, the one peripheric the other central, the inflammation spreads until it involves the whole of the encephalon as is shown by the lesion of the encephalon as is shown by the lesion of vessels and of interstitial tissue. The nervous elements, cells and tubes participate later and often in a secondary manner in these organic modifications. Statements like this coming from the source they do, we cannot ignore. Let us consider them.

He says the early writers considered either disease of the membranes or cortex cerebri as the seat of the disease, but that Joise (1861) relieved the cortical substance from all charges as to being the chief point of importance and fixed upon the ventricular walls as the seat of the disease, as proved by the presence upon them of a transparent, gelatinous layer, of variable thickness, covered with a considerable number of granulations. He then reports nine cases of general paralysis in which the pathological anatomy was studied.

CASE I.

In 1858 shooting pains in legs, then in thorax and arms. In 1866 marked ataxia, onset of general paralysis.

At the beginning of 1868 the general paralysis was well marked and the ataxia masked by paraplegia. Autopsy: Sclerosis of the posterior columns of the spinal cord, and diffused sclerosis of lateral columns more marked in lumbar region—diffused interstitial encephalitis with inflammation well marked of lining membrane of ventricles.

CASE II.

Since eight years giddiness, headache, numbness of limbs, cramps in calves of the legs, shooting pains, intellectual weakness. For three years embarrassment of speech; since eighteen months epileptiform and apoplectiform attacks. Upon entering the asylum there was well-marked general paralysis with weakness of right side. Autopsy: Periencephalitis, periendymitis, chronic, diffused interstitial encephalitis.

These cases are reported at great length and are of great interest. Seven others are considered together, six men and one woman. With the woman there was a "granulated state of the ventricular walls, and the usual cerebral lesions of general paralysis, diffuse interstitial myelitis." She had suffered also during the disease besides other symptoms, with epileptiform attacks.

With the six men besides the usual lesions he reports as special peculiarities, one ataxic with epileptiform attacks, gray degeneration of posterior colums of spinal cord; two others had diffused, interstitial myelitis more marked in posterior columns; one had epileptiform attacks, the other apoplectiform; the fourth presented a dilatation of the central canal of the cord, with sclerosis of subjacent parts, no convulsions; the fifth had diffuse interstitial myelitis, sclerosis of 2nd and 3rd pairs of cranial nerves. He had apoplectiform attacks; with the sixth there was no spinal lesion and during life had no convulsive attacks. With all these the ventricular walls were covered with granulations of variable volume and number. They were more numerous in the floor of the fourth ventricle. He then describes fully the appearance of the granulations, of the walls, and surrounding parts. Following this are seven figures illustrating pathological appearances.

In a paper published in the *archives de Phys. Norm et Path. Mars*, 1868. Magnan presents his views upon the Anatomo-Pathologic study of general paralysis. (*De L. Etude Anatomo Pathologique de la Paralysic Générale*). His first section is devoted to a study of the lesions of general paralysis visible to the eye alone. He reviews the opinions of authors and says almost all parts of the brain have been alleged to be the seat of the disease. He argues with Luys, Calmeil, Bayle, etc., that the cerebellum is rarely implicated.

His second section considers microscopic appearances. In the fourth division of this section he says, there are a very considerable number of cases in which the lesion begins in the cord below and extends upwards towards the brain and that the symptoms keep pace with the disease, first manifesting themselves in the inferior extremities, extending by degrees slowly upwards ending at last in well developed general paralysis. The cellular tissue is the part primarily affected the nerve tubes and cells secondarily. This shows itself in all parts but is more marked in the posterior columns, extending sometimes throughout their whole extent. The pains felt are attributed to pressure upon nerve cells and tubes by the interstitial nolplasm.

Lockhart Clark declares that in cases of long standing general paralysis, the spinal cord is nearly if not always affected. In some cases it is softened in certain parts to the consistency of cream, and the grey matter may be fluid. These degenerations he has spoken of also in relation to tetanus. He describes three forms of alteration in general paralysis (LANCET, Sept., 1866).

Westphal, (Virchow's Archiv, 1867), speaks of the relation that exists beween the cerebral and spinal disturbance in general paralysis. His conclusion is that *spinal lesion always accompanies general paralysis.*

Simon, in 1867, reported 26 cases in *Centralblatt* No. 54, in which the lesions described by Clark were found as well in death from other diseases as in general paralysis, as in epilepsy, melancholia, tuberculosis, etc. Magnan's conclusions are:

"1st. In general paralysis the lesions visible to the eye alone are of value only in their generál assemblage.

2nd. They can be modified by conditions purely physical, independent of the disease. Considered apart from all others it is not rare to find them wanting; in some rarely exceptional cases they can all be deficent at the same time.

3rd. The lesions most intimate of the brain (nuclear proliferation of interstitial tissue in the whole extent of the organ) have appeared to us constant, independent of all external action, they are above all the lesions which we should seek.

4th. In cases of medullary lesions (propagation of the lesion from the marrow to the brain, or from the brain to the spinal marrow. We can follow the morbid processes even to their most perfect development and give a much better account of its different phases.

5th. This lesion being seated primatively upon the interstitial tissue the parenchymatous lesions when they exist, seem to us to be consecutive.

6th. These parenchymatous lesions show themselves at a very early hour, and the existence of granular bodies, easy to demonstrate in the fresh state of the cord are then much better appreciated.

7th. The lacunas or spaces of marked disintegration in the cord can in the future, when they are determined with more precision, explain the partial accidents which are produced sometimes on the side of motility and sensibility, and which we attach in general to troubles defined as of the circulation."

In another paper by Magnan (*Gazette des Hospitals*, March, 1871) entitled *Des Relations entre les lesions du cerveau et certaines lesions de la moelle et des nerfs dans la paralysie generale*, (Relation between the lesions of the brain and certain lesions of the spinal marrow and of the nerves in general paralysis) an attempt is made to determine more exactly the character of the lesions of general paralysis. The plan and title of this paper indicate the true manner of studying general paralysis; the relation of the various lesions to each other. The second division treats of the clinical features of the disease. He says: "There are some paralytics with whom one or several years elapse, may be ten or fifteen, before general paralysis is developed, that we see troubles of sensibility; such are fulgerent pains returning in paroxysms every few seconds, there being intervals of a few minutes in some cases, in others days or months between the attacks. They return brusquely, are not fixed but are erratic as a rule, yet may appear in one leg, a knee or foot, or circumscribed portion of the skin. Pressure does not increase them, but on the contrary diminishes them. When they disappear they leave no appreciable change in the part. As they return they add little by little to the motor disturbance. The walk becomes uncertain, reeling; the patient stumbles upon an uneven surface; he descends stairs with great difficulty; the point of the foot projecting in front, is irregularly directed to the right or left, sometimes striking the leg or malleolus of the opposite side; the foot shot forward, goes beyond the point aimed at and is rapidly withdrawn, the toes striking. When the individual wishes to turn around the legs cross and a fall is liable to result. The inco-ordination of movement increases when the eyes are closed, or when the patient is deprived of light. These are as you perceive symptoms of ataxia. In other cases the phenomena at the onset manifest lesion of sensibility and motion, with dizziness, formication in the inferior extremities, pricking in the soles of the feet, impaired sensation of the sole, cramps, modification of sensibility to pain, of temperature; the legs are weak; weakness of joints, sense of weight and great fatigue. With some muscular weakness predominates, and disturbance of sensation is almost wanting.

In some cases we learn, at length, that patients have suffered in the extremities without being able to determine the nature of the trouble. The relatives say they have had rheumatismal pains, gout, etc., but give no details. That these first troubles may be symptoms of ataxia or simultaneous disturbances without special character of motility and sensibility or of motility alone, may be shown later by weakness of the bladder and rectum manifested by retention or incontinence of urine or by obstinate constipation or involuntary stools. Little by little supervenes a girdle of pain, a sensation of constriction at the base of the thorax, of oppression. Later the hands become useless, the arms are seized with tremblings, which obliges the patient to suspend his occupations if his work requires a certain precision. We see appear also hesitation of speech, fibrillary trembling of lips and vermicular movements upon the surface of the tongue, with inequality of the pupils. At the same time intelligence weakens, memory is unfaithful, the aptitude for work diminishes. Errors become habitually frequent. Thoughtlessness predominates with the greater part of the acts of the individual. The character changes, the disease shows itself more. The patient becomes irritable, difficult to control or on the contrary he shows a childish docility and allows himself to be directed without the least resistance. Often appear delirious, ambitious, hypochondriacal or melancholic ideas; ideas of persecution, etc.; but the varied forms of ideas do not in the delirium prevent us from recognizing in its inception the work of paralysis; all has a certain seal of demence which serves as an original mark."

Cases are then reported. The first one with disturbance of sensibility and motility in th inferior extremities (ataxia), followed by general paralysis; apoplectic attacks, left hemiplegia. Loss almost complete of smell. In this case the diseases progressed from below upwards.

The next case is one the symptoms show to be characterized by the existence at the same time of general paralysis, ataxia, and sclerosis in patches. There was weakening of intellectual faculties, hesitation of speech and inequality of pupils. Exaltation of ideas.

In his deductions Magnan says: "It remains for us to note a group of facts which indicate lesions of nerves. There are some patients with whom one or more years before the development of the paralysis there is a weakening of sight with more or less violent headaches; amblyopia makes progress and ends finally in complete loss of vision. In cases where the ophthalmoscope is employed to aid diagnosis, we recognize atrophy of the papilla, which causes us to conclude there is atrophy of the optic nerve. Sometimes the attention is drawn to a paralysis of the upper eyelids, strabismus, diplopia, or anæsthesia of the skin of the jaws or buccal mucous membrane. At other times it is hearing, smell or taste which is modified or lost. More frequently these phenomena appear in the course of general paralysis towards the end of the disease. Functional troubles are not rare; several nerves may be attacked at the same time.

Magnan then considers the *seat of the disease.* He details the post mortem appearances usually found as given by every one—calls attention to the increased development of connective tissue and progressive degeneration of nervous elements.

"In presence of these facts," says he: "We vainly declare a simple coincidence in the simultaneous appearance of centres of sclerosis in different portions of the nervous system. The manner of appearance of the lesion, its propagation successively, its general character, always the same, demonstrates that a common tie unites these different morbid manifestations. The appearance spontaneously of a sclerosis of the optic nerves, or other nerves shows that the nervous system possesses the pathogenetic conditions necessary for the production of sclerosis; that this chronic irritation threatens the nervous system in its whole extent; that in striking even a very limited portion, it affirms its powerful action and ought to be regarded as a dangerous enemy against which it is necessary to contend.

"The relation of all these facts serves to elucidate many questions thus far obscure. * * * *

Of the intimate relations between the lesions of nerves, cord and brain in general paralysis we can conclude that the chief fact in the development of the disease is the general disposition of all the nervous system to a particular mode of irritation presiding at the multiplied local determinations which produce them."

What are these local determinations? Critchton Browne, in the article cited before, says in relation to symptoms seen to be lesions observed after death: "It would be useless to attempt any analysis of them, and instead of doing so I think it better to indicate generally the correspondence which exists between the localization of the adhesions and the psychial and motor symptoms in general paralysis. In the first place then, to what extent can we realize adhesions, as landmarks of the essential lesions? To what extent can we trace out their distribution over the surface of the hemispheres, define regions for which they have special affinities, or draw boundaries that they never transgress? To some extent we can already do this, and I shall proceed to give the results of my observations as to their topography. If, in doing this, I should make some statements that may not appear to be warranted by the illustrations here given, it must be considered that I am generalizing from a much wider induction than these illustrations afford.

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On taking a general survey of the stripped or prepared brain of a general paralytic, in which the adhesions are present, we are immediately struck by the fact, already mentioned, that they are confined to the anterior three-fourths of the brain, and are not to be seen on the posterior fourth. In all the six brains here delineated, the exemption of the occipital lobes from any trace of adhesion of the pia mater is very apparent. And this exemption is, as it were, only part of a wider immunity from visible pathological change which these lobes enjoy. In all varieties of chronic insanity, in which there is opacity of the arachnoid and thickening of the pia mater, that opacity and thickening terminate abruptly at the parieto-occipital sulci. Whenever there is wasting of the convolutions, that wasting ends with the annectant gyri, and does not invade the three tiers of occipital gyri. And whenever there are morbid changes in the cortical layers revealed by the microscope, these changes, whether in cells, fibres, vessels, or neuroglia, are less marked in the occipital lobes than in any other region of the cerebrum. These lobes, in short, in the insane, present morbid appearances of any kind less frequently, and to a less degree, than any of the other cerebral lobes. Their freedom from those special morbid appearances which we have described as characteristic of general paralysis is complete and invariable. I have never found genuine adhesion of the pia mater to the cortex behind the parieto-occipital fissure; and as a rule, these adhesions are not found on the annectant gyri. It is not only the external surface of the occipital lobe that is exempt from adhesions; its internal aspect forming the cuneus or occipital lobule, and the posterior extremity of the uncinate gyrus, are equally free from them. Over all aspects of the lobe, indeed the pia mater remains thin, and may be removed, with care, without tearing away of the grey matter along with it. I say with care, because the very tenuity of the membrane in this region renders it easy to make abrasions, if scrupulous nicity is not observed in peeling it off.

But our general survey of the brain in general paralysis reveals to us another region, that may be said to be free from adhesions, and that is the island of Reil or middle lobe. Here as a rule, the pia mater strips off most readily, and leaves the gyri operti with a smooth and unbroken surface. Very rarely have I noted adhesions in the island of Reil; and then there existed an advanced state of decay of the brain, and other sources of fallacy. Ordinarily when the tough strong membrane spanning the sylvian fissure is torn through, the pia mater may be removed from the insula with the utmost facility.

Turning now from those portions of the brain in which adhesions are not encountered to those in which they do occur, we may attend first to the frontal lobe which is undoubtedly their favorite site.

Here if anywhere, are adhesions likely to be found. Here are they usually most numerous, and most firm, so that when they are torn through a considerable depth of grey matter is removed, and a proportionally deep abrasion with steep rough edges is left behind. There is no subdivision of this lobe, and I include it, in accordance with Turner's arrangement, the ascending frontal gyrus, in which adhesions do not occur. Over its superior external and internal aspects, and over the orbital lobule they abound. In the marginal gyrus, where it forms the border of the great median fissure, both on its outer and inner aspect, they are generally very numerous, most so perhaps at its anterior extremity, where it bends downwards, and is recurved towards the anterior perforated spot. In the frontal gyri, properly so-called, superior, middle, and inferior, they are also numerous and extensive; indeed, in my experience the anterior extremities of these gyri, forming the tips of the frontal lobes, constitute the areas where adhesions in cases of general paralysis are most invariably found and are of most marked character. In this locality the pia mater is often attached to the grey substance, not in scattered parts and patches, but over the whole of the summits of the convolutions, and tears away when removed, what is apparently, half of the whole depth of that substance. In a few brains, adhesions have not been found in this region, but in others they have been detected here when they could not be discovered elsewhere, and I am now more confident of being able to demonstrate them here than in any other region. On tracing the three parallel frontal gyri backwards, in cases where adhesions exist, these for the most part diminish in number until quite the posterior ends of the gyri, where they impinge upon the ascending frontal gyrus, is reached, when the adhesions again become decided, and partake of that marked character which is generally noticed in them in the ascending frontal gyrus. Dividing the frontal lobes on its superior and outer surface into three nearly equal sections by supposed lines running downwards from the median fissure, I should say that the adhesions in general paralysis are most pronounced in the anterior belt, that they are less frequent and severe in the second belt, and are again more pronounced in the third or posterior belt, which lies immediately in front of the fissure of Roland. At the posterior end of the inferior frontal gyrus, contiguous to the sylvian fissure, adhesions are almost invariably found.

In the majority of cases adhesions are found over the slightly concave surface of the orbital lobule, where, however, the thickening and cloudiness of the membranes are never so decided as on the upper aspect of the fronal lobe. The adhesions in this locality are often more diffused, and less broken up and scattered than elsewhere. Their most constant situation is along the edges of the olfactory sulcus, and when they are torn through here it is not at all unusual for the olfactory bulb and peduncle to be torn away from their connections. The three gyri which enter into the formation of the lobule are all liable to adhesions, but the posterior one, which is adjacent to the central lobe, suffers from them less frequently than the external and internal convolution.

In the parietal lobes adhesions of an easily recognizable kind are generally found affecting all its four gyri; sometimes the adhesions are small and isolated, at other times they are large and closely grouped. Sometimes a single gyrus, such as the ascending parietal or supra-marginal lobule seems to have escaped them altogether, and sometimes they are confined to one gyrus, such as the postero-parietal lobule. In one set of cases the adhesions are more numerous in the anterior half of the lobe; in another set they are more numerous in its posterior half. Occasionally they manifest a tendency to congregate in a line with the median fissure, and again they are massed near the horizontal limb of the sylvian fissure. But whatever their distribution may be, the angular gyrus is but rarely free from them. We are not yet in a position to speak more explicitly of the arrangement or order of production of the adhesions in the parietal lobes, or to say more than that they occur there oftener than in any other districts of the cerebrum, except the frontal lobes.

In the temporo-sphenoidal lobes adhesions occur very irregularly, being sometimes found spread over the three series of convolutions, as in the cases of B. W., Plate vi., and W. R., Plate iv., and being sometimes limited to a few spots; as in the case of W. D. M., Plate viii. In some cases the pia mater is not adherent to the cortex in any part of these lobes, as in the case of F. S., Plate v. The general rule seems to be, however, that there are two localities in these lobes which the adhesions especially affect, one being the anterior lip, and the other the upper margin, where the superior convolutions form the lower lip of the sylvian fissure, and lie in contact with the inferior frontal convolutions. The thinness of the pia mater over the temporo-sphenoidal lobe, even after it has undergone pathologic change, makes it very difficult to determine the existence of adhesions in this region, unless by the nitric acid process.

On the inner surface of the hemispheres adhesions are frequently seen anterior to the internal parieto-occipital, and to the collateral fissures. As has been already pointed out, they are copiously developed on the marginal gyrus, especially in front. They occasionally exist also on the gyrus fornicatus, quadrilateral lobule, and on the anterior half of the uncinate gyrus. Not seldom, however, the uncinate gyrus is free from adhesions, and I have never seen any on the tentorial face of the hemispheres.

Both hemispheres are affected by adhesions to nearly an equal extent, and there is generally considerable degree of symmetry in the distributions of the adhesions over them. On the whole they seem to be more numerous over the right than over the left hemisphere.

Having thus arrived at some general ideas as to the localization of the adhesions in general paralysis, the next step is to sum up the symptoms of that disease, and to ascertain how far these corresponded with the results of experimental interrogation of the regions where the adhesions are found. This can only be done in the most brief and general way. Any attempt to unravel the complex phenomena of general paralysis, and to connect these with their anatomical substrata, to show how the symptoms are confounded, and to what sensory and motor centres their ultimate elements may be referred, would beguile us into a disquisition of great length, for which our knowledge is not yet ripe. Here nothing but a faint outline of the more prominent symptoms is offered.

The symptoms of general paralysis are psychial and motor, and of these the psychial appear first in order of time. Soon after the psychial symptoms have declared themselves, the motor symptoms appear, and subsequently they advance together, though often at very different rates and in very varied combinations. In enumerating the symptoms, psychial and motor, I shall at present keep in view only the most typical cases of the disease, of which there are, of course, several recognized varieties.

PSYCHIAL SYMPTOMS.

1. General restlessness and unsteadiness of mind, with impairment of attention; alternating with apathy and drowsiness.

2. A change in disposition and temper, and a general loss of self-restraint; at first as regards trivial, social observances, and then as regards general conduct.

3. Impairment of the reflective powers, so that there is no logical and systematic development of thought.

4. General exaltation of thought, with a profusion of remembered images and ideas, and numerous extravagant desires.

5. Failure of memory and forgetfulness; at first of words, and then of events.

6. Delirious conceptions, and the transformation of desires into beliefs, these being generally connected with personal greatness and power.

7. Hallucinations of the senses, in which remembered sense impressions are so vivid and intense as to spread to the periphery.

8. Maniacal restlessness and excitement, in which present impulses and feelings instantly pass over into action.

9. Increased mental weakness, with the incoherent and fragmentary repetition of the false ideas previously entertained.

10. Failure of the senses, with more marked impairment of memory.

11. Complete fatuity, passing into coma and death.

MOTOR SYMPTOMS.

1. Persistent contraction of the occipito-frontalis muscle, and some dilatation of the pupils, causing the eyes to be widely opened and the forehead wrinkled, and giving an expression of surprised attention to the face.

2. Persistent contraction and frequent tremors of the zygomatic muscles, giving a pleased and benevolent expression to the countenance.

3. Slight muscular restlessness and unsteadiness.

4. Impairment of the power of executing fine and detailed movements, so that manipulative skill is lost while movements *en masse* are still well performed.

5. Fibrillar tremors of the tongue, and some loss of control

over its movements, so that it is protruded with difficulty; is rolled about when protruded, and is suddenly withdrawn.

6. Twitchings of the nostrils and upper lip, with frequent tremors of the latter.

7. Impairment of articulation, which is thick, and wanting in distinctness.

8. An alteration in the voice, as well as thickness and hesitancy in speech.

9. Loss of control over the combined movements of the hand and wrist, so that the hand-writing greatly deteriorates.

10. Changes in the pupils, which are at first irregularly contracted, and then become irregularly dilated.

11. An alteration in gait, which becomes unsteady; the more complex movements of the thighs, leg, and foot, and the balancing of the pelvis on the hip joints, being performed with difficulty.

12. General muscular agitation and restlessness.

13. Gradual loss of power in the muscles of the face, tongue, neck, and limbs.

14. Spasmodic contraction of the masseter muscles, causing grinding of the teeth.

15. Convulsive seizures—most marked on one side of the body, and followed by transitory hemiplegia.

16. Loss of control over the sphincters.

17. Complete prostration of muscular strength and helplessness, and difficult deglutition.

18. Contractions of the muscles of the limbs, and paralysis of the muscles of respiration.

The psychial symptoms unmistakably point to the primary involvement of the frontal lobes, which have been fixed upon by Ferrier as the centres of attention, and of the intellectual and reflective faculties, and where as we have seen, adhesions are numerous and constant in general paralysis. 'In general paralysis,' says Westphal: 'The mental disturbance is from the first based on the foundation of mental weakness.'"

He then writes several pages to show the functions of the cerebral lobes—asserts that the sensory centres are more frequently exempt than other parts of the cerebrum from morbid change. He says, there is one of them, however, the angular gyrus, or *pli courbe*—the sight centre according to Ferrier on which adhesions are often seen. Now hallucinations of vision are the most frequent of all hallucinations in general paralysis; indeed hallucinations of any other kind, except these, and those connected with the muscular sense are exceedingly rare."

In the January number 1877, of the *Annales Medico-Psychologiques* is an article by Dr. Achille Foville, *fils*, entitled: *Des Relations entre les troubles de la motility dans la Paralysie Generale et les Lesions de la Couche Corticale des Circonvoluions Fronto-Parietales.* (Relations between the troubles of motility in general paralysis and the lesions of the cortical substance of the fronto-parietal convolutions). This article is based upon the supposition that there are motor centres in the cortex cerebri that can be stimulated, that disease located in these centres gives rise to the double train of symptoms, mental and physical, characterizing general paralysis. The article before us of which we translate the important parts is an attempt to prove this by relying upon the experiments of Hitzig, Ferrier, Dupuy, Carville and Duret, Virenque, Veyssiere, Vulpian and Charcot, and Lepine. The localization of centres of motion influencing the members in the cerebral cortex requires special consideration, at present we can consider it only in its relation to our subject We have not space now for a further consideration, nor a lengthy one of the article before us and will limit it to a notice of the conclusions. They are:

"1st. General paralysis of the insane has for its pathognomonic characteristics constant troubles of motility; in point of view anatomically a constant alteration of the cortical substance of the convolutions of the fronto-parietal regions.

2nd. The most recent works tend to attribute the motor disturbance in general paralysis to histologic modifications more or less manifest of the bulb of the marrow; no relation of cause to effect can then be established between the anatomic lesion constantly manifest and the symptomatic manifestations equally constant.

3rd. The discovery by Hitzig and Ferrier of an excitable and motor region on the surface of the convolutions of the middle part of the cerebral hemispheres permits us to establish this relation.

4th. The existence in the excitable region of the convolutions of distinct cortical motor centers for the movement of the superior extremities, of the inferior, of the neck and of the head, of the tongue and of the jaws, of the face and lips, of the globe of the eye and eye-lids allows us to render an exact account of the localization of ataxias, of convulsions, of contractions and of limited partial paralyses of certain organs in general paralysis.

5th. It is at first by the excitement produced in these different motor centers that hyperæmia results at the onset; and successive congestive attacks at the middle, followed at the end by sclerosis. These explain the progressive troubles of motility, such as the embarassment of speech, fibrillary spasms of the lips, and of the cheeks, ataxia and disassociation of movements of the members, grinding of the teeth, contraction and dilatation of the pupil, convulsions limited to a single muscle, or to a small number of them, epileptiform attacks, hemiplegias, partial or light, persistent contractions, and at length paralysis more or less complete.

6th. *En resumé*, in general paralysis the lesions of the cortex of the fronto-parietal convolutions are the cause directly of the motor disturbance; on the localization and intensity of these lesions depend the localization and intensity of the ataxic symptoms, as well as spasmodic and paralytic."

We have now run over the whole nervous system; every part of which we find is alleged by one or more authors to be the seat of general paralysis. As we have before declared, we still believe that no one portion is exclusively the seat of the disease but that it is a disease of the whole system, locating itself more clearly at one time upon one point, at another at some other. We do not agree with those who locate the disease exclusively in the so-called motor centres of the cortex cerebri, for all are compelled to admit that clear cases exist in which the adhesions claimed to be pathognomonic are wanting. Again, we have the best authority for believing that it may begin in the spinal cord and ascend to the brain. The symptoms during life indicate the progress of the disease and as each nervous centre is successively invaded we have a new train of symptoms involved. In some cases there are convulsions, we have disease at the base of the brain, in the ventricles and brain substance, why not attribute the convulsions to this instead of to the motor centres of the cortex. Every one familiar with modern physiology and pathology of the nervous system knows that the disturbance of motor function in the extremities may be wholly due to disease of the spinal cord, ataxia to the posterior columns, atrophy, cramps and convulsive muscular action to the anterior portions of the cord or of gray matter. Vascular disturbance may be due to disease of vaso motor ganglia. There is no one symptom that may not be explained by a corresponding pathological condition outside of the so-called cortical motor centres. Adhesions may exist as found in general paralysis and no motor disturbance result.

In a case of a man 18 years insane dying of embolism of heart and middle cerebral artery of which I made a post mortem examination since this article was begun; there were adhesions over all the fronto-parietal region, yet during life there was never any paralysis, or motor disturbance. The patient was imbecile, constantly desired to get away, would try to force himself through the door when any one passed, yet if allowed to run would go but a little distance, then wander around. He ate well—slept well—had normal action of lungs, liver and kidneys, during the last few months of his life. Two days before his death he complained of headache, had labored action of the heart, gradually failed and died. The brain was much congested as is the case where embolism has continued for a time, and the convolution back of the fissure of Sylvius upon the left side was yellow and soft as cream. The arachnoid was adherent as above described and when torn off in many places left the appearance as if mice had nibbled it, or moth-eaten. .

There was nothing in the case from first to last indicative of general paralysis. There was no ataxia. The medulla and upper end of the spinal cord were healthy—the remainder was not examined. Had there been disease of the posterior columns of the cord we would have expected to find ataxia manifesting itself, and in proportion as the posterior cornua of grey matter were involved loss of sensation. Tactile sensibility was not impaired.

Here is an insane man with the exact seat of general paralysis as alleged by some, involved, and no probable invasion of other centres below the medulla, yet no evidence of general paralysis. The structure of the brain except the parts mentioned gave no evidence of disease. We have portions from every part now in chromic acid solution which we propose to prepare and examine with the microscope to determine more fully the extent of lesion.

We now conclude this article although many other articles are before us from leading writers upon various features of general paralysis, as to temperature, the pupil, convulsions, etc.

In our next we will review the recent literature of *cerebral local-*

ization. We trust that in this the reader will find represented fully the views of writers upon all points, and that by a study of each he will conclude that a study of any one portion of the nervous system in general paralysis is useless, that this alone explains why writers differ, and that although correct as to the lesions of the parts they study, they err in excluding or ignoring other parts.

COMPENSATION OF MEDICAL EXPERTS.*—The Supreme Court of Indiana has rendered the following decision in the case of Dr. Buchman v. The State; appealed from the Allen County (Ind.) Criminal Circuit Court:

One Hamilton was on trial charged with the commission of a rape. Dr. Buchman being called as an expert, refused to give his professional opinion without being compensated in an amount greater than the ordinary witness fee. The court being of opinion that the witness was required to answer the questions without compensation other than ordinary witness fees, he was committed as for contempt. From the commitment the witness appealed.

Abstract of opinion.—A physician or surgeon, in respect to facts within his knowledge, stands upon an equality, in reference to compensation, with all other witnesses. But can he be compelled to give a professional opinion without compensation, other than the ordinary witness fees? In England there is some diversity in the decisions in respect to the question whether an attorney or medical man is entitled to higher compensation for attendance, as a witness, than ordinary witnesses. This diversity, however, relates to witnesses required to testify to facts, and not to give professional opinions. In respect to professional opinions, we are not aware of any diversity of decision.

A witness, selected by a party to give his opinion on a subject with which he is peculiarly conversant from his employment in life, is not bound as a matter of public duty to testify; and the party who selects him must pay him for his time before he is compelled to testify. 1 Car. and Kir., 23; 1 Sprague (U. S.), 276; 13 Abb. Prac. Rep. (N. S.), 207; Ordronaux Juris. Med., § 114; 2 Phil. Ev., 4th Am. ed , 828.

We proceed now to test it by the constitution of the state. Section twenty-one of the bill of rights provides that, "No man's particular services shall be demanded without just compensation." Under this provision of the constitution, this court held that the court could not demand the professional services of an attorney without compensation. 4 Ind., 527. If the professional services of a lawyer can not be required in a civil case, without compensation, how can the professional services of a physician be thus required? Is not his medical knowledge his capital stock? Are his professional services more at the mercy of the public than the services of a lawyer? When a physician testifies as an expert, by giving his opinion, he is performing a strictly professional service. The purpose of his service is not to prove facts in the cause, but to aid the court or jury in arriving at a proper conclusion from facts otherwise proved. All attempts to make a distinction between attorneys and physicians are frivolous.

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* We are indebted to Mr. Hiner, Librarian of the Supreme Court, for the abstract of this very important decision.

If physicians or surgeons can be compelled to render professional services, by giving their opinions on the trial of criminal causes without compensation, then an eminent physician or surgeon may be compelled to go to any part of the district or state, at any and all times, to render such services, without other compensation than such as he may recover, as ordinary witness fees, from the defendant in the prosecution, depending upon his conviction and ability to pay. This, under the general principles of law and the constitution of the state, he can not be compelled to do.*

Reviews and Notices.

A New Work on Pathology.—A work entitled "Studies in Pathological Anatomy," by Francis Delafield, M. D., is in course of publication by William Wood & Co., of New York.

It is to appear in monthly parts, each containing from two to four lithographic plates, in color, with explanatory text. The first part is now ready.

A review of Judge Lowrey's opinion can be found on page 95, January number of the LANCET & OBSERVER. A resolution congratulatory to the Allen Co., Med. Society was passed by the Marion Co. Med. Society (Ind.).

The Multum in Parvo Reference and Dose Book. By C. Henri Leonard, M.A., M.D. Third Edition. Revised and Enlarged.

This little vest pocket reference book contains about as much information as can be printed in the limited space occupied by the author. It is certainly multum in parvo.

Annual Medical Directory of Regular Physicians of the State of Illinois for the year 1878. By F. A. Emmons, M. D., Chicago, Ill.

Doctor Emmons has done the profession of Illinois a good service in placing within their reach a very complete State Directory. No doubt a number of names have been unintentionally omitted. Beside the names of physicians, other matter of interest is incorporated, including all the recent laws enacted to regulate the practice of medicine in the state, the laws pertaining to lunatics, idiots and drunkards. The volume is exceedingly well arranged and is handsomely printed.

A Manual of Nursing. Prepared for the Training School of Nurses attached to Bellevue Hospital. New York: G. P. Putnam's Sons. For sale by Robert Clarke & Co. Price, $1.00.

This unpretentious little book contains a summary of directions for nursing the sick, as found in a number of popular books on this subject. In this connection we are reliably informed that the schools for nurses in active operation in some of our large cities are meeting with deserved success. The contents of this volume illustrates the course of instruction given in the school attached to Bellevue Hospital.

Physicians should call the attention of nurses and those who have care of the sick to books of this character. As unskillful nursing is a common obstacle to success in the cure of disease, well written books of instruction to nurses should be welcomed by every practitioner.

Clinical Lectures on Surgery, Lecture 1. By Prof. J. H. Pooley, M. D., of Columbus.

This is a reprint from the "Ohio Med. and Surgical Journal," The lecture consists of clinical remarks upon first, a case of Mammary Cancer—the diagnosis, operation, and favorable results. Second, a strumous patient with caries of both lower limbs. General treatment having failed, amputation was resorted to, with subsequent irritation, fever, purpura, death, and third, a case of fracture of clavicle, produced by muscular exertion. The remarks of the lecturer are chiefly directed to the peculiarity of the association of cause and effect; while as to the plan of dressing he discards the axillary pad, and employs varous devices of adhesive strapping, adapting the special plan to the particular case. Case four is one of plastic surgery, removing an eschar from the cheek, the result of an abscess. The clinical style of Prof. Pooley is pleasant and instructive.

An Address to the Alumni of the Medical School at Buffalo. By Frank H. Hamilton, A. M., M. D., L. L. D.

Dr. Hamilton was one of the founders of the Medical Department of the University of Buffalo; and being invited to address the Alumni on the occasion of the annual gathering afforded the genial Professor good occasion for saying some good things, which he has improved in a way that proves so readable that we should be glad to transcribe the whole bodily, if we had space; as it is we are tempted to make some free quotations. This will be appreciated by both lecturers and those who have been on the benches: "The practice of applauding a Professor, who is seeking to enforce some grave and subtle matter of science, by a rally of wit, I must be permitted to say, in passing, especially as I am speaking to medical students as well as to alumni, is not to be commended. It scarcely comports with the dignity of such occasions, or with your own assumed dignity as students of medicine. Nevertheless we like it; and while we lift the hand in disapproval, the heart answers in approval. We are enchanted, sometimes by your coquetry. Alas that we are obliged to confess it; we are human; and when we ought to be vexed that you compel us to drop the thread of our discourse, we often turn aside to drop the tear of affection." And this too is enjoyable, it is a quiet little tilt at the tendency to extravagance in specialism. The condition of matters he proposes to illustrate by a supposed case: "A lady called upon a physician for advice, stating that her health was "completely broken" and that she was "affected with a frightful collections of maladies" but as she did not specify them particularly, the doctor began to interrogate her about the condition of her nervous system; when she replied promptly that he need not trouble himself to inquire into that matter, as she had consulted Dr. Brown Sequard, and under advice, she was taking strychnine and iron, and phosphorus to build up her nerves. The doctor then suggested that he would like to examine her heart. " Oh " said she " that is in a very bad condition, but Dr. Clark is giving me aconite, digitalis and belladonna to lower its action." " Your lungs?" said the doctor inquiringly. " Dr. Metcalf has examined my lungs," was the ready reply, and I do not come for any other advice in that matter." He is giving me several cough mixtures." " But I notice," said the doctor, —hoping that he had now hit upon the weak point, and the one which she proposed to entrust to his special guardianship. "I observe that you still have some cough and perhaps the trouble is in your throat rather than your lungs." " Dr. Metcalf thought this might be so," said she, " and he sent me to Dr. Elsburg, who says there is trouble there, also, and he is applying daily, iodoform spray, and other things." " You wear glasses?" Yes my sight was a little affected, but Dr. Noyes thinks they will be cured if I wear glasses, and take his medicine long enough."

" Pray madam " exclaimed the doctor, completely baffled in his attempt to find an unprotected point in this splendid line of defences, " will you kindly inform me what organ or fragment of an organ, or tissue you wish to place under my charge, or consult me about?" " Yes doctor if you please. I have consulted a good many other specialists, and as I am abundantly able to do so, and as health is of more value than money, I propose to consult them all. I know you by reputation very well, and I felt sure you could tell me better than any one person else who makes a specialty of warts, and I would thank you to give me a letter of introduction to whoever you think is best, I have a wart on the back of my neck, and as I would not like to have a scar, you will please to recommend me to some one who will cure it without cutting.

E. B. S.

Report on Obstetrics. Read before the Detroit Medical and Library Association by Edward W. Jenks, M. D.

This report is more especially devoted to a consideration of the use of the forceps. Reprinted from the *Detroit Med. Journal*, Sept. 1877.

Fluid Hydrastis,

A Concentrated Fluid Preparation of the Hydrastis Canadensis,

PREPARED ONLY BY

Wm. S. Merrell & Co. Cincinnati.

The Great Tonic and Corrector of all the Mucous Surfaces.

A valuable improvement on the usual *alcoholic* fluid preparations of Hydrastis, and worthy the attention of the profession. Added to either alcohol, glycerine, syrup or water, it forms a perfectly clear solution. It is the most perfect representative of the drug, in the fluid form, ever offered.

The peculiar process employed in its manufacture rejects the offensive Resin found in the Hydrastis, and retains only the *Alkaloids* in their native combinations.

Indications for Use.

In general it is indicated in ALL AFFECTIONS OF THE MUCOUS SURFACES, correcting abnormal conditions characterized by profuse discharge of tenacious mucous, sub-acute inflammation, erosions and superficial *ulcerations.*

In Lucorrhea, with thick albuminous discharge like the white of an egg, use locally by injection, 1 to 4 drs. to one pint of water, 3 or 4 times per day.

In Ulceration of the Cervix-Uteri and Vagina, with tenacious discharge, place in contact with the inflamed surfaces *cotton* saturated with Fl. Hydrastis, 2 to 4 drs. to Glycerine 4 oz.

In Stomatitis, Pseudo-membranous, ulcerative, or gangrenous, when the inflammation is sub-acute, or characterized by profuse secretion of ropy mucous, use as a gargle or wash in proportion of 1 to 2 drs. to water 4 ounces, When the breath is offensive. Pot. Chlorate or Baptisia assists its action.

In Gonorrhea, as an injection; and in *Balanitis*, as a wash: use 1 to 2 drs. to water 4 oz.

In Nephritis, acute and chronic, when mucous is found in the urine, use internally, 1 to 4 drs. in water 4 ounces. Teaspoonful 3 or 4 times per day, as adjunct to other treatment. .

In Cystitis, acute and chronic, when the urine is pale or greenish, and viscid from abundance of mucous, use internally 1 to 4 drs. in water 4 ounces. In the severer cases of Chronic Cystitis with phosphatic urine, rinsing out the bladder with tepid water, and following with Fluid Hydrastis 1 to 2 drs. to water 4 ounces; one ounce to be used as an injection into the bladder, is often of great benefit.

In Dyspepsia, with undue activity of the mucous glands and deficient action of the gastric follicles, of which the symptoms are a heavily loaded tongue, especially at the base; and in the morning, dull aching pains in the stomach, with sinking sensations, nausea, and occasional vomiting of vitiated mucous, use half to one ounce to a pint of sherry or native wine. Desert-spoonful 3 or 4 times a day.

In Constipation, either simple or of Hepatic origin, in doses for an adult of gtt. 10 to gtt. 40, three times a day. In *Infantile* constipation 1 to 2 drops twice daily.

In Bronchorrhea and *Cough*, with expectoration of yellow tenacious mucous.

In Intermittents, especially of the type characterized by disease of the *Gastro*-intestinal mucous membrane, with nausea, heavily coated tongue, broad and flabby and pale, or coated with yellow, dirty mucous; bowels constipated, or when moved, evacuations clay colored or streaked with mucous, use 1 to 4 drs. to water 4 ounces. Teaspoonful every 3 or 4 hours.

In Opthalmi Tarsi, Conjunctivitis, and other diseases of the eye, in which occur a mucous or muco-purulent discharge, locally gtt. 10 to gtt. 15 in distilled or soft water 4 ounces.

In Catarrh of the Intestines, and superficial ulceration of same; in Fistula-in-Ano, and hemorrhage from the Rectum. Internally and locally, by injection, 1 to 4 drs. to water 4 oz.

As a *local application*, to prevent decomposition, applied to the surface of cancerous growths, and unhealthy ulcers and sores, as an injection into the bowels in diarrhœa and dysentery, and to correct the offensive character of many mucous discharges.

In *many Chronic Diseases* in which exist undue activity of the mucous membranes in some portion of the body, this remedy is of marked benefit as a *general tonic*. The following are some convenient forms for internal use:

℞ Fluid Hydrastis ½ to 1 fluid ounce, Sherry wine sufficient to make one pint;
or ℞ Fluid Hydrastis ½ to 1 fluid ounce, syrup sufficient to make one pint;
or ℞ Fluid Hydrastis ½ to 1 fluid ounce, Glycerine 2 fluid ounces, water sufficient to make 1 pint. Teaspoonful to a dessert spoonful 3 or 4 times per day.

PRICE.......................... $2.00 per lb.

A Sample Package,

for trial, containing one pound of the Fluid Hydrastis, in carefully packed bottle, will be sent by Express, *prepaid*, on receipt of two dollars. This will apply to sample packages only.

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The Strumous Element in the Etiology of Joint Disease.—By V. P. Gibney, M. D., of New York.

This paper which appeared originally in the *N. Y. Medical Journal* is based upon an analysis of 860 cases collected from the reports of various historians, Dr. Gibney's experience in a hospital for the "ruptured and crippled" entitles his study of these cases to a respectful consideration. He concludes that "the old theory of a strumous diathesis being at the base of all chronic joint-disease" is confirmed by the histories of these cases; this conclusion is presented in opposition to the theory of traumatism as the origin. He says: "it is in evidence, then, that every case supposed to be traumatic, which gave a full and reliable history, was *vulnerable by a predisposition*, and was simply induced by *traumatism as an exciting cause*." E. B. S.

The Relations Existing Between Eczema and Psoriasis. This is the subject of a paper read by Dr. Robt. Campbell, Physician to the Skin Department, Demilt Dispensary, New York, before the New York Dermatological Society.

The author does not claim the two diseases as essentially the same, but he aims to show that they are very closely allied to each other. His views are enforced by the narration of cases bearing upon the subject, and which were observed by Dr. Bulkley and himself in the Clinic of Demilt Dispensary. These cases appear to sustain the opinion of relationship between eczema and psoriasis. The treatment recommended is chiefly constitutional, alkalies administered internally; local remedies are believed to be only palliative and adjuvant. E. B. S.

Transactions of West Virginia State Medical Society. — The tenth annual meeting was held in the city of Clarksburg, on the 30th and 31st of May 1877.

The printed transactions contain the usual report of proceedings and reports of officers, and the transactions thus occupied with the annual address of President Hildreth, of Wheeling—with other papers evidently prepared with carefulness and some, as that of Dr. Huff on cases of phymosis—and Dr. Frissel's surgical cases, exhibiting valuable results of experience. The society meets in 1878 at Weston, on the third Wednesday in May. E. B. S.

Ovariotomy by Enucleation. Read to the International Medical Congress at Philadelphia, Sept., 1876. By Dr. Julius F. Miner, M. D., of Buffalo Medical College. Reprinted from the transactions..

We also hope to utilize this article in the Obstetrical Abstracts.

The Nature, Origin, and Prevention of Puerperal Fever. By W. T. Lusk, M. D., and extracted from the transactions of the International Medical Congress, at Philadelphia, Sept., 1876.

We hope to present the points of this valuable essay in due time in another connection.

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THE CINCINNATI

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J. C. CULBERTSON, M. D., Editor.
T. M. STEVENS, M. D., Ass't Editor.

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Original Communications.

Article I.—Contribution to the Natural History of the Doctor.

By T. C. Minor, M. D., Cincinnati, O.

The history of the doctor in medicine has been fully written by Freind and Renouard, and no more interesting and entertaining reading can be found in the realms of literature; but, from the period of the *Renaissance*, the doctor flourished in other fields; for, with the revival of letters in Europe, the study of chemistry, geology, botany and natural history largely attracted his attention. Were we to classify the doctor we should divide him into five different groups, i.e.: 1st. The Medical Doctor. 2nd. The Political Doctor. 3rd. The Literary Doctor. 4th. The Artistic Doctor. 5th. The Scientific Doctor. In regard to the first group, as before stated, nothing remains to be written. In regard to the second group a volume might be edited, from the material at hand. As regards the fourth group the facts on which to base a history are too scanty to warrant more than a brief notice.

We all know that the "doctor in medicine" flourished at a prehistoric period; that he survived the Deluge, as he appeared shortly afterwards in a flourishing condition; and, that during subsequent ages neither war, pestilence, or famine were sufficient to cause his extinction. We all know likewise that the doctor in medicine has been the grand motor power in diffusing knowledge and enlightenment throughout Christendom; for owing to the strata of *scepticism* permeating his organization he has caused the great changes which have occurred, from time to time, in the domains of Law and Theology. As regards these last two professions, it has been the wont of their most learned professors to accuse the doctor in medicine of iconoclastic tendencies, and most certainly they have just cause for making such accusation.

At an early date the doctor in medicine acquired a taste for politics. Unwilling, however, to leave his profession for the exclusive pursuit of political life, he was content to take only such subordinate positions as did not interfere with the duties of an active professional life. Under the garb of physician he became a social agitator, and in a certain measure, shaped the future policy of the civilized world, his position as a disciple of the healing art often protecting him from the direct enmity of church and State. In his confidential capacity as medical adviser he also gave political advice. As the recipient of state secrets from unsuspecting political patients, he was often enabled to checkmate illiberal Governmental movements. As the tendency towards free thinking became stronger, the doctor in medicine, his shadow, the political doctor, grew more aggressive and demanded modifications and even radical changes in the ecclesiastical and civil law, and it is for this reason that we see him at a little later period freely using the pike and musket against self constituted authority. Need we speak of Warren, the illustrious commandant of Bunker Hill, or of the medical generals, Mercer, Dearborn, Irvine and Beatty in 1776. Need we speak of the medical students who died behind the barricade in the "Latin Quarter" during the French Revolution. Need we speak of the medical exiles from Germany after the political persecutions of 1848. Need we speak of the Irish patriot, Emmet, who, though a member of the bar, was a doctor by education. We all see, even at the present day, how Virchow stands up in the German Parliament and battles for the cause of human rights, and we can pardon the eminent old scientist's eagerness to meet Count Bismarck on the duelling ground.

The political doctor has also had the temerity to enter the controversial field in antagonism to the theologian. The eminent anatomist, Michael Servetus, the author of "Trinitatis Erroribus," "Justitatia Regni Christi," "Dialogorum de Trinitate," "Christianismi Restitutio," awakened the wrath of the mighty Calvin by his denial of the Trinity; and we know how the eminent Protestant reformer, in the meek spirit of Christian charity, caused his medical adversary to be burnt at the stake. The name of Balthazar Orobio, the author of "Certamen Philosophicum," and other philosophical essays, who was tortured so cruelly during the Spanish Inquisition, is yet familiar to the medical reader. The political doctor has not yet forgotten Julian Metrie, the author of the "Natural History of the Soul," and "L' Homme Machine," nor how he was persecuted and forced to fly France and even Germany. But the night of religious tyranny is past, and in the early dawn of the nineteenth century we find a more liberal Catholicism and a more generous Calvanism. Although the later Darwin may have startled theologians by his "missing link," we have yet to learn that the eminent Englishman has been either cremated or imprisioned.

The liberal tendency of the political doctor, and the semi-sceptical dogmas to which he seems occasionally to cling, has led the world to charge him with atheism. If the annals of medicine be carefully searched the falseness of this charge could be fully proved. The political doctor most often dies in the bosom of some church; whether the slow decay of his mental faculties induce this change, or whether it is brought about by a true conversion to theological doctrines, is not within our province to state. So much for the doctor in medicine and his shadow, the political doctor. Let us no longer view him from a medical or political standpoint but confine ourselves to observing him as he appears in a purely scientific, literary and artistic aspect, remembering, in the meantime, that our notes are confined to a period dating from the sixteenth to the early part of the present century.

If the different varieties of the scientific doctor should be arranged and classified it would read about as follows: 1st. The botanical doctor. 2nd. The zoological doctor. 3rd. The geological doctor. 4th. The astronomical doctor. 5th. The chemical doctor. 6th. The mechanical doctor.

Let us now turn to the fuller consideration of the subject. In science the doctor looms up most grandly in the departments of botany and zoology. Without the doctor's aid the former would not have amounted to much, and the latter would have been robbed of some of its ablest contributors. The study of materia medica and comparative anatomy induces a natural taste for the original investigations of the Flora and Fauna, and many a medical mind has been seduced from the exclusive study of physic, as an art, by the syren-like charms of Nature. By sea and land, in every clime, the scientific doctor is busied in the pursuit of these two collateral branches of science. In his search for new species and varieties he wanders from the ice bound coasts of the Arctic regions to the Southernmost coasts of torrid Africa. He braves alike the bitterness of the Polar cold and the ennervations of the Tropical heat. He leaves behind him the tender ties of home and kindred, and too often, alas! dies of disease and want, a stranger in foreign lands. He it was who enriched the materia medica, and supplies the remedies against disease, to an unappreciative and ungrateful world. In his wanderings, the botanical and zoological doctor acquires a taste for travel, and as a natural sequence, becomes an explorer. In this latter field his claim to superiority must ever stand undisputed. Among the many physicians who have won their laurels in the botanical field, only the few whose names have shown the brightest need be mentioned.

In the early part of the sixteenth century Leonard Fuchsius, professor of medicine at Tubingen, wrote his "History of Plants." The beautiful Fuschia is so called in honor of him. In the same century Melchior Guillaudius, of Konigsburg, published his many articles, notably an essay on "Papyrus;" Leonard Rawolf, of Augsburg, his "Flora Orientalis. In Italy, Caesaralpinus published his "Treatise de Plantis," and Michael Mercado several works on botany. In France, Jas. Dalechamps wrote his "History of Plants;" John Banhinus, of Lyons, his "Historia Plantarum Universalis," and Gasper Banhinus the "Theatrum Botanicum." In England, John Gerard wrote a "History of Plants," and Thomas Gibson, many essays on the subject.

In the seventeeenth century, in Germany, Maurice Hoffman, a professor of anatomy, published his "Catalogus Plantarum Hortens," and other botanical works. In Italy, Prospero Alpini, a professor of Padua, published "De Plantis Ægypti," and Ovid Montalbani, professor of medicine at Bologna, his "Index Plantarium" and "Bibliotheca Botanica" In France, Anthony Jussieu wrote his "Progress of Botany," and Joseph Tournefort his "Elements of Botany" and "Parisian Plants." In Holland, Peter Päan contributed largely to the subject, and Paul Herman published a "Catalogue of Plants." In Sweden, Olan Rudbeck, professor of medicine at Upsal, wrote his "Catalogue of Iceland Plants." In Denmark, Gasbard Pelletier published his "Plants of Iceland," and Simoni Pauli his "Flora Danica." In England, William How wrote elaborate botanical essays, and Leonard Plunkenet his "Almagestum Botanicum."

In the eighteenth century the study of botany was pursued with increased zeal by medical men, many of whom traveled to far distant land in seach of new plants and medicinal remedies. In Germany, Andrew Rivinus wrote his "Introductio in Rem Herbarium;" Michael Valentin the "Ampitheatrum Zootomicum:" John Gmelin the "Siberian Flora;" John Dillenius, the father of cryptogamic botany, his "Catalogue of the Plants of Giessen;" John Hedwig his "Cryptogamia," and Nicholas Jacquin the celebrated "Floræ Austriacæ." In Denmark, George Oeder published his "Floræ Danicæ." In Italy, John Zannichelli wrote his "Catalogum Plantarum Terrestrium Marina;" John Tozzetti his "Uru Plantarum in Medicina;" Domini Cirillo, of Naples, his "Neapolitana Flora," and Charles Allioni the "Piedmontese Flora." In Holland, George Rumphius wrote his "Herbal Amboyana," and John Burman the "Catalogue of Ceylonian Plants." In Sweden, the greatest of all botanists, the immortal Charles Linnæus, published his numerous celebrated works. In France, Francis Marquet wrote his "Plants of Loraine;" James Spielman the "Prodromus Floræ Argentinensis;" Sebastian Vailliant "Botanical Parisieuse." In England, John Martyn published the "Historia Plantarium Rariorum;" William Houston a "Catalogue of Plants;" John Sibthorpe, "Floræ Oxoniensis," and Richard Pultenay his "Progress of Botany in England." In Scotland, Patrick Blair wrote his "Botanic Essays," and Charles Alston his "Tyrocinium Botanicum Edinbergense." In America, John Clayton wrote his "Floræ Virginicæ," and John Mitchell the "Principles of Botany."

In the early part of the present century, in England, James Smith published his "English Botany," and "English Flora." In France, Dominic Villars wrote the "Natural History of Plants of Dauphiny." In Germany, Charles Wildenon published his

"Species Plantarum." In America, Francis Porcher wrote his "Resources in Southern Fields and Forests."

In the department of natural history the doctor during the same period occupied an exalted position.

In the sixteenth century, in France, William Rondellet wrote a work on "Ichthiology." In Italy, Hippolitus Salviani, a "Treatise on Fishes," and Ulysses Aldrovandus his "History of Birds and Insects."

In the seventeenth century, in Holland, John Swammerdam published his "General History of Insects."

In the eighteenth century, in Sweden, Philibert Commerson wrote a work on "Ichthyology;" Peter Artedi his "Bibliotheca Ichthyologica," and John Fabricus, the great entomologist, his "Systema Entomologiæ" and "Philosophia Entomologia." In Germany, John Erxleben published his "Principles of Natural History," and Peter Camper a "Natural History." In England, Hans Sloane wrote his "Natural History of Jamaica;" Edward Tyson, his "Phocænia;" James Smith, "Lepidopterous Insects;" John Berkenhout, a "Natural History of Great Britain and Ireland." In France, Francis Salerme published his "Animal Kingdom" and "Natural History of Animals;" John Brouguieres, works on "Molluscæ" and "Zoophylæ;" Louis Daubenton, in connection with the celebrated Buffon, the great work on "Natural History." In Italy, Anthony Vallismeri wrote his "Origin of Various Insects," and Lazarus Spallanzani a work on "Comparative Anatomy."

In the early part of the present century, in France, Francis Peron published his "Observations on Anthropology;" Guillaume Ollivier, the entomological portion of the "Encyclopedie Methodique," and John Gilibert, a "Natural History." In England, George Shaw wrote works on "General Zoology" and "Zoology of [illegible] Holland," and Edward Jenner, the introducer of vaccination, his "Natural History of the Cuckoo." In Germany, James Wilkens published a "Memoir on the Utility of Insects." In [illegible]ca, Samuel Mitchell wrote his "Fishes of New York;" Benjamin Burton, essays on "Rattlesnakes," "Oppossum" and "Honey Bee," and John Godman, the well known work on "American Natural History."

Within the last twenty-five years physicians have almost monopolized the fields of botany and natural history, and a full catalogue of their names and works would require many pages. As an instance, take the years 1876-7 in our own country; during this period no less than three superb works on natural history were published: *i. e.*, Theodore Jasper's "Birds of North America," E. Coues' "North American Birds," and D. S. Jordan's "Vertebrates of the Northern United States."

In mineralogy and gealogy, medicine is able to boast of a Baumer, Dana and DeWitt, yet it seems as though the medical mind is more interested in other branches of science.

A few physicians have figured as astronomers, as in the instances of Dryander, Bainbridge, Toaldo, and Holyoke.

In chemistry, pages might be filled with the names of various celebrities, as for instance, Malouin, Bergman, Black, Darcet, Garnet, Stahl, Pemberton,' Wollaston, Henry, Brugnatelli, Chaptal, Berthollet, Tennant and Davy.

As scientists, medical travelers and explorers, we have had Varsenius, Ives, Bourgainvill, Petit, Park, Carver, Kane and Livingstone.

The mechanical doctor cannot be said to have been a great success. Guillotin, the inventor of the guillotine, was probably the only one whose name will descend to posterity. As a mechanician the doctor usually devotes his attention to surgical splints and patent pessaries, his mind scorning to soar above things professional. In the meantime, it is only just to say the world owes a debt of gratitude to Gilbert for his discoveries in regard to the use of the magnet.

In the domain of literature the doctor figures in an unexpected manner, to one unacquainted with the subject, and his inheritance in the kingdom of letters is founded on an immovable basis. The philosophic instinct of the literary doctor is shown in the writings of Fernel, Fludd, Veethuysen, Goddard, Zwinger, Becker, Lining, Wood, Jurin, LeSage, Caralls, Beccaria, Abercombie, Galvani, Mesmer, McLean, and Bertholen. As a charming miscellaneous writer he stands unrivaled; as witness:

In the sixteenth century, Gilbert Longuel's "Remarks on Plautus, Ovid, Nepor, Cicero and Valla.

In the seventeeth century Gabriel Naude's "Life of Louis XI." and "Bibliographia Politica;" Guy Patin's "Letters," William Petty on "Political Economy" and "Finance;" Thomas Browne's

"Religio Medici," and Edward Dickinson's "Delphi Phœnicizantes."

In the eighteenth century, Julian Freind's "History of Physic;" James Parson's "Affinity and Origin of the Human Languages;" and Anthony Vandals "Heathen Oracles."

The literary doctor has a special penchant for historical writing.

Thus we see, in the sixteenth century, John Caius' "History of Cambridge."

In the seventeenth century, the "Danish Histories" of John Pontanus; Robert Brady's "History of England;" Edmund Berlace's "History of Ireland;" Bernard Connor's "History of Poland;" and James Spon's "History of Geneva."

In the eighteenth century, Alexander Russell's "History of Allepo;" William Burrett's "History of Bristol;" Oliver Goldsmith's "Histories of England, Greece and Rome;" Tobias Smollet's "History of England;" Mathias Bels' "History of Hungary;" and Englebert Kœmpfer's "History of Japan."

In the early part of the present century, Hugh Williamson's "History of North Carolina;" David Ramsey's "History of South Carolina" and "History of United States;" Daniel Drake's "Pen Pictures of Cincinnati;" and Charles Botta's "History of Italy."

As a writer on antiquities, we notice the literary doctor's contributions, in Humphrey Lhwyd's "Armentaria Romano" and "De Mona Druidum Insula, Antiquitatæ suæ Restitutæ;" William Musgrave's "Geta Brittanica;" and William Stukeley's "Itinerarium Curiosum" and "Paleographia Brittanica."

The literary doctor is sometimes found engaged in wooing the muses. Forgetting his pills and potions in the delightful task of rhyming, he astonishes the world ever and anon by entering the realms of poesy.

Thus we see, in the sixteenth century, in France, Nostridanius inditing his celebrated prophecies in verse, and James Pelletier publishing a volume of poems. In Italy, during the same period, Forcastorio wrote his "De Morbo Gallico" in rhyme.

In the seventeenth century, Antonides Vandergoes, a Dutch poet, wrote his celebrated poem, "The River Y." In France, Peter Petit wrote his "Codrus;" Claudius Quillet, his satirical poem, "Callapædia;" Paulmier, poems in Italian, French and Spanish; Menardiere, a collection of miscellaneous rhymes, and Charles Spon, the "Prognostics of Hippocrates," in hexameter verses. In England, Ralph Balthurst published a volume of Latin poems; and the celebrated Samuel Garth, his "Dispensary" and "Claremont." In Scotland, Arthur Johnston wrote poetical paraphrases of the "Pslams of David."

In the eighteenth century the literary doctor acquired undying fame by his contributions to poetry. In France, Quesnoy published his well known poem, "The Farm House;" and Herissant his poem on "Printing." In Germany, Albert Haller wrote his celebrated "Poem on the Alps;" and John Zimmerman his "Solitude." In Holland, John Pechlan published a laudatory poem on "Tea;" and Godfrey Bidloo a volume of "Low Dutch Ballads." In Italy, Marchetti wrote a volume of miscellaneous poems. In England, Oliver Goldsmith wrote his "Deserted Village;" Richard Blackmore, his "Prince Arthur" and "Creation;" John Armstrong the "Economy of Love" and "Art of Preserving Health;" John Nott, "Alonzo" and "Leonora;" Mark Akenside, "Pleasures of Imagination;" Peter Templeton, a collection of miscellaneous poems; Bernard Mandeville, his "Fables of the Bees;" George Crabbe, the "Library" and "Village;" and Erasmus Darwin, his "Botanic Garden." In Scotland, Thomas Brown wrote his "Agnes" and "Paradise of Coquettes;" and James Granger, his "Sugar Cane" and "Ode to Solitude." In America, John Osborn wrote the celebrated "Nantucket," "Whaling Song," and other poems; Lemuel Hopkins, his "Anarchiad," a satirical poem, and "The Cancer Quack;" and Benjamin Church, numerous scattered poems.

In the early part of the present century, in England, John Keats, a medical student, published his "Endymion," "Lamia," and "Isabella;" Walcot, (Peter Pinder), wrote his "Lousiad," a satirical poem; John Good, his "Translations of Solomon's Songs," and "Job" and "Lucretius;" John Leydon, his "Scenes of Infancy;" and John Aiken, his "Poetical Criticisms." At a later day, David Moir published his "Domestic Lyrics." In America, Joseph Rodman Drake wrote his "American Flag," and "Culprit Fay;" Oliver Wendell Holmes, "The Old Constitution;" while Drs. Mitchell, Bigelow, Holland and Francis have all written numerous poems.

Not content with the field of poetry the literary doctor plunges into the realms of Fiction; for we see, in the eighteenth century, Tobias Smollet's "Roderick Random," "Peregrine Pickle," "Count

Fathrom," and "Humphrey Clinker;" with Oliver Goldsmith's famous "Vicar of Wakefield."

In the present century, we notice Henlenus Scott's "Adventures of a Rupee;" Warren's "Diary of a Physician," and "Ten Thousand a Year;" Charles Lever's "Harry Lorrequer," "Charles O'Malley," "Jack Hinton," and "Roland Cashel;" Oliver Wendell Holmes' "Guardian Angel;" and J. G. Holland's "Nicholas Minturn." The famous French wit, Rabelais, the author of the wondrous histories "Gargantua," and "Pantagruel;" and the famous English wit, Arbuthnot, author of Martinus Scribelerus," might with much propriety be classed as medical romancers, 'though, perhaps, they should be assigned to a little corner by themselves, as medical humoristic writers.

Not satisfied with fiction the literary doctor must needs invade the sacred precincts of the Drama; for as early as the sixteenth century, Thomas Lodge wrote his "Wounds of Civil War," and "The Looking Glass for London."

In the eighteenth century, James Drake wrote his "Sham Lawyer;" Oliver Goldsmith, "She Stoops to Conquer;" Benjamin Hoadley, "The Suspicious Husband;" George Sewall, his "Walter Raleigh;" Paul Hifferman, his "Earl of Warwick;" and Frederick Pilon, "The Humors of an Election," and "He would be a Soldier."

It is an amusing fact that as a writer of Tragedy the literary doctor is a failure; for the plays of Lodge, Sewall, and Hifferman are no longer on the stage. Strange as it may seem, the old English comedies written by Goldsmith, Hoadley, Drake, and Pilon still hold their own; and there are but few regular theatre goers who have not been delighted with the humor of "The Sham Lawyer," "She Stoops to Conquer," "The Suspicious Husband," and "He would be a Soldier."

We have not yet spoken of the doctor in art, as he appears in the departments of sculpture, painting and music. It cannot be said that the medical man has figured brilliantly in the artistic arena.

In the eighteenth century Peter Burrette flourished as an amateur musician and elegant writer on musical subjects; while John Calcott, a medical student, published a "Musical Grammar."

As a painter and sculptor the doctor is a grand failure. Many physicians have certainly been moderately good draughtsmen and carvers, but none have ever acquired lasting fame in these branches of art. Whether the doctor considers the embodiment of the human form divine in marble a profanity, and the copying of the same in paint a sacrilege, we know not. It is certain, however, that some doctors are savage art critics; especially is this so if one happens to be a skilled anatomist, for we have heard it stated on medical authority that Canova's "Venus" has a dislocated femur, and Power's "Greek Slave" a deformed pelvis. We have no sympathy, however, with such medical carpers, knowing them to be, for the most part, miserable old bachelors, who have never attempted to create anything in their own image.

In conclusion, we might state that Cicero and Pliny both claimed that the doctor was the first and best invention of the immortal Gods. This assertion we do not care to discuss, native professional modesty forbids; nevertheless, if it be true that the doctor is a Celestial invention, it is also equally true that the same invention has been of immense benefit to mankind.

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Art. 2.—Transcendental Medicine.—An Enquiry Concerning the Manner of Morbific and Remedial Agents Independently of Empiricism.

By T. L. WRIGHT, M. D., Bellefontaine, O.

SECTION VI.

A further consideration of the place of the brain, in connection with the preservation of human health; with the invasion of Disease; and with recovery from morbid conditions.

In order to meet the demands of brevity, and to attain to a clear conception of the nature of the subject before us, it will be useful to state several well-known facts in a certain order of sequence, or position of mutual relationship. While nothing exhaustive will be attempted in this statement, because a complete exposition of trite facts, is unnecessary, yet, it is hoped that a glance at their connections will conduce to the establishment of a solid and comprehensive basis, upon which to found remarks and illustrations, in the pursuit of just and reasonable conclusions.

Transcendental therapeutics, or those therapeutical powers and activities, which are remote, and to the careless observer, silent and hidden; yet which are first, and before the immediate action of remedies, and which really guide and determine that action, will be the chief topics for discussion. And as therapeutics must be assimilated in the mind with the operations of morbid and toxic agencies, inaugurating the phenomena of diseases, so morbid and toxic efficients will receive consideration, when applicable to the illustration of therapeutical operations and potentialities.

Everything connected with the world we inhabit is governed by rigid and fixed laws. There is no exception. Forces unalterable, and of supreme power, control and irrevocably determine the character, place, and office of the minutest atom, as well as of the entire globe of the earth. Every advance in natural science more clearly establishes this proposition. New facts simplify the laws of nature. They banish the darkness which obscures the knowledge of final causes. The doubts and uncertainties, even now attending the explanation of the actions of natural laws, are evidences of the imperfection yet oppressing human observation and human knowledge; and not of solecisms in the integrity, and the uniform applicability of nature's laws, in the government of the universe.

The mere pebble upon the wayside, is imbued with the properties, or more correctly, the powers of cohesion, of gravitation, of some conditions of electricity, of heat, latent and free, together with magnetic susceptibilities, and chemical affinities. It is capable, moreover, of partaking in the changes which characterize vitalization, if certain favorable and determinate conditions are presented to it. A close examination will show, perhaps, that the matter forming the pebble, has already been concerned in the processes of vitality; if it has not indeed, been concerned in many different and distinct vital operations. The fixing of carbonic acid, especially in its relation with calcium, tells the story of ages of vegetative life before the limestone rocks were formed; before indeed, the existence of the marine animals, from which limestone rocks are largely constructed, was possible; and therefore anterior to the existence of the human being, to whose body the presence of carbonate of lime is indispensable.

There is in fact a certain kind and degree of virility, in every atom of inert matter belonging to earth. It possesses positive qualities and endless possibilities. Matter acts and reacts with majestic power, sometimes at insensible distances, at other times at distances which place time and space at defiance, and apparently independently of both.

The form of matter usually termed inert, is controlled and directed by the natural forces, immediately, without the intervention of organs, or the operation of functions.

Another form of matter not inert, but possessing a species of vitality, is the vegetable world. As a whole, while it is subject in a considerable degree to the direct action of these same unseen but clearly potential forces, that govern and decide the state of inert matter, it yet maintains in addition, a subordinate character of individuality. The vegetable kingdom is supplied with roots, and other organs, peculiar to itself. It is superficial, external, as regards the earth, as indeed, all life in actual progression. It is, in a degree greatly more distinctive than is matter strictly inert, under the influence of solar light. Cell life is a most important feature of the individuality of plants, when considered with respect to inert matter.

The diseases of the vegetable kingdom, are mostly associates with cell life. They are usually connected with the operations of the general forces of nature, and in a corresponding degree, are beyond the control of artificial interferences.

Advancing a step higher in the world of matter, life is found in the brute creation. In the place of roots for the absorption of nutriment, fixing the structure in one place, there is a stomach, internally situated, permitting, and requiring the individual to move from place to place; thus occupying varying relationships with the world at large.

The brute animal is furthermore distinguished by the presence of a nervous system, of which the spinal and organic portions are largely in the ascendant. In common with matter every where, the brutish structure is not entirely withdrawn from the direct influence of the great operative forces of nature; still, those forces act upon brute structures through the spinal and organic nervous systems in a modified and indirect manner, under ordinary circumstances.

Diseases in the brute creation are greater in variety and complication, than in the vegetable kingdom. The dispersion of the nervous power in brutes, and the absence of a complete nervous representative organ, through which to impress remote and isolated pathological states, render the diseases of the brute creation, if fewer and more simple than those of the human being, far more fatal.

In the human animal, the nervous system in its perfection, stands as it were, between the general structure, and the great compelling forces of nature. Man represents in his body, the common characteristics of vegetable life, particularly the metamorphosis of cell growth. He also is in possession of the internal alimentary apparatus of the brute.

The human stomach is equal to the widest range of alimentary material that characterizes the entire animal kingdom. Indeed, mankind as a whole, requires food of every conceivable character. To obtain this, he is compelled to exercise his mental faculties; and the conditions are afforded, by the universal search for food, of increasing, and perfecting his intellectual powers.

But the distinguishing faculty of the human being is the perfect brain, not the mere spinal and ganglionic systems, which he also possesses in common with brutes. The crowning characteristic of his nature however, is not only the will and mental faculties, administered by the brain power, but the subordination beside, of the organic and spinal nervous systems to the dominion of the brain.

The close relationship that is always present, but generally is unperceived by the ordinary senses, between the brain and the sympathetic nervous system, may be illustrated by the effects of great and sudden pain. This pain apparently arrests, or suspends the supply of nervous power passing from the brain to the organic system of nerves. Upon the occurrence of such suspension of brain force, those organs whose continuity of action depends upon the alertness of the ganglionic centers, at once fail of their usual activity. There ensue great depression of vital force, with feeble pulse, inability to generate animal heat, and perhaps syncope.

Intense mental emotions strongly affecting and absorbing the powers of the brain, will not only destroy the appetite, but they may so paralyze the organic system as to cause vomiting, and suspend the digestive functions. The natural state of the brain is one which governs the organic actions of the system, and in a state of health this control is continuous; is, in fact, without any, the slightest suspension. It will be seen hereafter, that the watchfulness of the brain over the organic functions is, if possible, more jealously asserted, than its control of the mental faculties.

No doubt can exist that the brain may be often directly affected through the ordinary senses in such a manner as greatly to impress, not only the healthy processes, but also to influence and modify diseased actions. Certain tastes, certain odors, even particular sights and sounds, make profound impressions upon the functions of the human body. Nausea, syncope, convulsions, may all be produced in this manner.

Even the recollection by the mind, of such sensations, may renew the abnormal symptoms. Disturbances of the organic functions are daily caused by mental emotions; thus we see tears in grief, dryness of the mouth in fear, and jandice following powerful mental shock. These latter examples, however are but a repetition of the principle, that absorbing mental emotions affect, and most generally suspend, the supply of brain power to the ganglionic system.

The conclusion is, that there is a great principle sometimes subserved by the distinctness and simplicity of medical impressions. This simplicity is often lost by the compromises of polypharmacy; and this distinctness is sometimes impaired, by disguising the taste, and other sensible properties of the remedies that enter into prescriptions.

In his character as a living being, man is in a great measure independent. The forces of nature, so directly potent with inert matter, act upon man indirectly, for the most part. The brain operates by furnishing an epitome, synopsis, or perhaps more properly, interpreter of the universal forces of nature, as they are applied to the human structure. The brain certainly appears to exercise a modifying influence upon the quality or character, of the external forces affecting the health of the body. Thus man becomes, unlike inert matter, or the vegetable world, or the brute creation, in a very meaning sense, a free agent. He is, to a very considerable extent, self-sustaining, not only physically as an organism, but intellectually and morally.

This brings the subject fairly to the proposition that the brain, having cast off, or brought under authority all other powers or forces, is itself, the dominant organ of the human frame. It presides over, and directs the processes of health, physically as well as mentally. And in the independent human being, after birth, the brain is the organ primarily affected by morbid influences in the establishment of diseases; and through the intervention of the brain also, the recuperative powers are brought into activity.

Rules are proven, it is said, by exceptions. The propositions respecting the supreme efficiency of the brain, will be made more clear and satisfactory, by a review of some of the various modifications and differences, in the ways through which it may be approached and impressed.

As already declared, the brain stands out, between the entire universe of matter, and of force, and the personality, the humanity of man. It is liable to be impressed, therefore, in an infinite variety of ways, in accordance with the manifold characteristics of the influences pertaining to external nature. And the impressions made upon it, must exhibit modifications in the resultant phenomena, in accordance with the peculiar constituent elements of every seperate and distinct human structure.

A comparison of the science of medicine with other liberal sciences, will develop the justness of these remarks; and demonstrate, beside, the necessity of great care and research in the study of medical details, although the fundamental principles of medicine may be few and plain.

All truths are simple. The decalogue is very simple and brief. But the varying circumstances of the human race, have created so many, and complicated modifications of the strict applicability of the decalogue to individual conscience, that the theological library, treating of these exceptions, has become, by reason of its immensity, a thing of wonder and awe.

In a similar manner, the law is so loaded down with ponderous volumes of lore, on the subjects of rights and duties, under a wilderness of different heads, that it seems incredible, that its sum and substance is all contained in the words of the golden rule.

Again, as bearing upon the main subject under discussion, although it may be said, that all diseases originate, strictly speaking in states of the brain; and all cures really must begin in some impression upon that organ; yet the multitude of external forces capable of impressing the brain, and the intricate nature of the organization operated upon by such impression, have created the necessity of an extensive medical literature.

The accumulation of a great number of books, is an indication, if not of positive weakness, at least of imperfection in those sciences requiring them; and especially of the sciences connected with the morality, the intellect, and **the** physical health of the human being.

To be more specific, it may be remarked that the brain is exposed to many disturbing influences. It often fails to administer in perfection, the behests of the powers of external nature. It may become injured in its functions, not only by abuses arising from individual misconduct, but it is at all times subject to numberless morbid and uncongenial impressions of a depressing and depraving nature, of which it is entirely unconscious until the mischief is done, and actual disease is progressing.

It is of importance to remember that the brain of man is not simply the organ of the mind. These three constitutional components, namely: the brain, the organic system of nerves, and the cellular characteristics of vegetable life, are combined in the human structure. Yet, these three elements may act in a certain degree independently of each other always thus producing, however, some kind of disaster and disease. But that their union and harmonious action may become seriously disturbed, is unquestionable.

And it may here be remarked, in support of the declaration: "that man when in a state of health, is independent, and self-sustaining," that he is, when his brain is seriously affected mentally, utterly helpless. He is completely without resources. His course is not guided by impressions directly applied, by the paramount forces of nature, such as prevail in relation to matter that is inert. Nor has he the attribute common to the lower animals, called instinct, to appeal unto as a power of conservatism and safety. When man ceases to be independent and self-sustaining mentally, when he becomes insane, he is lost. He is without guide or compass, and his destiny is shaped in some manner, devoid of every element of rationality, or instinct.

The brain is the instrument of the displays of the mental faculties, it is true; but it is much more. And its activity as an exponent or a power, other than the mere manifestation of mental phenomena, is more persistent, and more constant than its watchfulness over the acts of the mind itself. Before the infant b[illegible] to think, the brain takes charge of the molecular, nutritive [illegible] functional processes of the structure; and all through life, when the mind is in slumber, as well as when it is awake, the brain is the tireless sentinel which directs and enforces the changes essential to health; and it guards also the portals of life when disease invades. And this part of the brain's functions, as already intimated, may be carried on when its relations with the other constituent elements of the human being are not perfect and entire; when, in fact, as a director of mental activity, its powers are sadly impaired, if not completely wrecked.

Nothing is more common than to speak of a sound mind in a sound body. The idea implied is, that to have a sound mind, it is essential that the physical body shall be in perfect health. Such intimate relationship however, is not indispensable to high qualities of mind or body. Undoubtedly a good habit of body is always desirable, and sometimes necessary in affording the best scope and endurance to the virility of some minds. But the fact is that under ordinary circumstances, when the molecular activities of the structure, the functional operations of its several organs, and the mental processes, are pretty equally the recipients of the brain force, no very phenomenal manifestation, either physically or intellectually, needs be anticipated.

When the central nervous impulse, is habitually directed to the support of the organizing processes of the structure, a large, strong, unwieldy body is most likely to be the result; accompanied by a very moderate, if not positively dull, mental capacity. On the other hand, when there is an excess of brain force lavished upon intellectual efforts, the mind may prove to be most capacious and brilliant, but for that very reason, the physical organization is very apt to be weak and inefficient.

Certain practical observations are so intimately connected with these propositions, that it would be a blemish to suppress them.

In children, when the growth of the body demands the expenditure of a large share of nervous energy, the requirement of uncommon and protracted mental effort, must result disastrously. This fact is especially applicable to the confinement, and severe study, of girls approaching maturity.

In every human being, there is a certain natural and inherent quantity of nervous force, belonging to that particular person. Exactly proportionate to that power, and the constitutional ability to renew and maintain it, is the individuality, and separate independence of every man. Just in that degree also, is he a free agent, and the director of his own destiny, uncontrolled by other minds, or by the forces of nature. In brief, in just that degree, and in that sense also, can man claim to be made in the image of the Creator. The conclusion follows, that every vice, or voluntary excess, or habit, which tends to impoverish the brain power, is an ignominious surrender of the highest trait common to man and God. It is an unmanly grovelling toward the estate and association of brutes.

To arrive at a reasonable degree of certainty respecting the powers and actions of the brain, with reference to organic processes; those which are not accompanied by sensation, and are not the subject of thought, it will be well to glance at the manner in which the brain receives and imparts impressions, in cases where the senses are acute, and the mind active. It is not claiming too much to declare, that the general laws of brain activity are precisely the same, whether that organ displays its powers through the mental faculties, or through the the unconscious organic sensibilities of the physiological, morbid, and therapeutical processes. In manifestations, both mental, and strictly organic, the brain, the common center of all nervous mobility, must exhibit a community of essential characteristics. A very cursory view of this part of the subject will suffice at present.

The delusive sensations presented during sleep, may produce mental activity in the form of dreams. This exhibition is perfectly regular, considering the imperfection of the sensations present, and considering also, the absence, during slumber, of the accurate correlation of the several organs of sense. Yet upon awakening, the preposterous nature of the ideas resulting from this purely, and truly physiological brain activity, is at once perceived. The infinite variety and intensity and rapidity of insane ideas; as well as the great multitude of imperfectly constructed unfinished, and grotesque ideas, thrown out in dreams, afford some measure of the extent and complexity of mental aberration; even when the brain is acting normally, but upon false or imperfet data.

An illustration has already been given, of what may be called organic memory, entirely unconnected with the ordinary senses, or with the intellectual powers. In the instance of a bite by a rabid animal, the morbid organic processes set up by the virus in the human being, often become suspended and after, perhaps, a long time upon some organic suggestion being afforded, they are resumed and completed.

SEE FERRIER, *Functions of the Brain*, p. 28[illegible] and elsewhere.

This may be called organic "exhibition;" but the explanation before given, is believed to be the more satisfactory.

In a manner precisely similar, certain morbid but insensible organic impressions may be made upon the brain. This may arise from some poisonous malarial agencies floating in the blood; or it may happen from any one, of a great variety of substances, that has gained access to the nervous center through some one of many different channels. But the morbid impression, appealing only to those nervous powers which act organically without exciting the ordinary sensibility of relation; without exciting any mental consciousness whatever; conveys a certain abnormal, unhealthy impulse to the brain.

Here the brain, as in mental hallucination, and, as in common dreams, operates physiologically with respect to the nature of the impression it has received. Organic changes, in consequence, take place, in strict conformity with the morbid impression applied to the brain; but not in accordance with the healthy physiological necessities of the structure. Here, as in dreams and insanity, there is a departure from the operations of the healthy state, and disease is established.

An unhealthy mental state may arise from a variety of separate causes; and from whatever cause it does originate, it is prone to assume a great range of expression. So, too, derangement of the brain of a character not affecting the mental faculties, may come from one of a multitude of morbid impressions, and may also find expression in a great range of morbid symptoms. In this way, it happens that a simple unhealthy impression may arouse a wide range of pathological actions; and it follows that a simple remedy therapeutically applied, is often sufficient to correct that impression; and, in that way, exhibit a very extensive applicability in the relief of morbid complications.

Another illustration of the functions of the brain, as conservative of the welfare of the structure at large, is afforded by the results of mechanical injuries. In common with all vitalized substances, in man, injuries of a mechanical nature, are followed, ordinarily, by repairative processes. But those actions of repair are not nearly so active, or complete in the vegetable, or even brute kingdoms, as in the human being.

Upon the receipt of physical injury by any part of the human structure, the brain at once declares the independence and personality of the entire organism, and it proceeds to set up reparative operations, commensurate with the injury done, and the importance of the human body. These operations of repair, are really forms of disease, originating in the morbid impression made upon the nervous center, by the violence inflicted. And this impression, whether attended by actual pain, or only receives through the insensible organic system, may originate fever and a long chain of morbid symptoms, as truly as though these actions were set in motion by some one of the more occult causes of disease.

It is well known that certain so-called nervous states; that is, certain states of the brain, or parts of the brain, will induce local phenomena, sometimes, very much circumscribed in extent. Of these, local perspiration, as of one half of the body; the production of peculiar odors by certain portions of the surface; unusual sensations, and pain, as of neuralgia, are examples. But it must not be imagined that such circumscribed local phenomena are confined to the surface of the body.

Under the dominion of some morbid state of the brain, and through an impression, most likely inappreciable to the ordinary senses, faultiness in the regular activity of one or more of the internal organs may take place. Such an impression may cause irregularity in the functional activity of a particular organ of secretion. A different impression may influence unfavorably, quite a different gland. Thus the liver, kidneys, and mammary glands may be separately influenced by distinctive mental, as well as morbid impressions, made upon the brain.

The act of vomiting, is ordinarily the result of an impression on the brain, of a peculiar, or specific kind. Vomiting is a common symptom in diseases of the brain; and its occurrence upon the administration of emetics, is certainly due to some inherent property in that class of medicines capable of producing a certain constant and specific impression upon the brain. This is equally true in fact, whether that therapeutical impression is made directly through nervous communication, or indirectly through the medium of the circulation. In either case the emetic impulse is so constant, and so direct upon the brain, that it may frequently be relied upon to neutralize, or dissipate morbid impressions pre-existing, and threatening the advent of active disease.

The extensive applicability of emetics cannot be explained upon the basis of the kind of matter frequently ejected from the stomach. Nor can the potent action of antimony, operating with, or without actual nausea; that is, acting either upon the ordinary sensibilities, or merely making an impression on the organic system, be rationally explained as satisfactorily as upon the theory of powerful brain impression.

The astonishing influences of this article of medicine over the anginose affections, as well as its dominion over sundry inflammatory pectoral diseases, are attributable to its efficacy in producing modifications in brain activity.

Morbid impressions upon the brain, will sometimes cause local conjestions.

Now it is undoubtedly true that certain states of the brain, induced by the influence of deleterious agents, will destroy the harmonious activity of the several parts of the body. This is seen in the absence of co-ordination in the muscular movements, in diseases of the cerebellum. Upon the hypothesis that the brain operates in accordance with fixed laws, it is likely that certain states of the brain, and particularly of the cerebellum, would induce a want of co-ordination in other functions beside that of muscular motion. The local perspiration, sensation, and odor, previously noted, are examples of the absence of co-ordination in the performance of certain functions. Of course the application of this principle is capable of extension, until it reaches every local trouble originating in morbid causes. The phenomena of hysteria are particularly pertinent to the illustration of an almost complete destruction of the natural and harmonious co-operation of all the functions, mental, as well as organic, of the human organism.

Respecting the influence of morbid impressions on the brain, including local conjestion accompanied possibly, with pain and consequent inflammation, a therapeutical illustration of the effects of medicine may be offered.

This illustration is afforded by the action of opium. This agent operates in a general way, by suspending brain activity, not only relates to ordinary sensation, but as relates to organic sensibility. There is not simply anaesthesia, but there is partial suspension of the glandular operations.

Opium will often exterminate inflammation in its incipiency, by suspending sensibility, and then destroying the pain and irritation, upon which conjestion depends By holding the animal activity in abeyance, for a longer or shorter time, and bringing the structure into a state approximating to mere vegetative existence, the danger of inflammatory action may be passed by. The brain slowly resumes its normal condition, while the influence exerted upon it by the therapeutical powers of the opium, has effaced, perhaps completely, the morbid impression which threatened to involve the organism in active disease.

Evidences of the efficiency of remedies in curing diseases, by means of brain impressions might be multiplied; some remedies operating universally, as opium; some again, acting locally, as in the instance of emetics. In the course of diseased actions arising from brain impression, there may undoubtedly spring many secondary symptoms, which grow out of the conditions imposed upon the structure by the original disease. Structural changes, and the presence of microscopic creatures, developed by the favoring conditions afforded to infusorial life, through a weakened and decaying organism, may take place; and a variety of other complications and sequela, may demand attention, in order to save life. These are the modifications and exceptions which chiefly perplex the physician, and call for the multiplication of books and medicines. But the prime mover, the author of all the ills of sickness, whether original or secondary, that really belong to the human structure, is the brain itself, under the influence of baleful agencies.

There are certain seeming exceptions to this; but a close scrutiny will most likely serve to confirm the doctrine of the absolute dominion of the brain in health, and its paramount powers and responsibilities in disease.

The laws of congenital deformities very aptly illustrate, if they do not absolutely explain, the essential nature of diseases. These deformities take their origin in an arrest of development, at some point in the evolutions of structure that pertain to the growth of the embryo. The hiatus, or deficiency so occurring, presents at birth, some hideous aspect. A deformity is the consequence. Diseases are the effects of the operation of brain force expressed in a physiological manner, but under the directions and influence of abnormal and defective impressions. In disease then, there is presented the spectacle of a series of defective physiological processes.

Equally to the point, are certain constitutional structural diseases, and notably cancer. The essential element of this disease is cell life; but defective, as compared with any cell life belonging to the healthy human body. It is a cell life that propagates itself however, and so extensively, indeed, that it becomes a universal irritant through its structural diffusion. It is a general interloper. It produces by reason of its presence, a mechanical oppression every where. Tissues become absorbed, atrophied, ulcerated ; and in these, and like ways, it produces death, most probably, rather than by any abstract malignancy, inherent in its own nature. It seems to merit the characteristic of a growth upon the human body rather than a disease of that body. It mechanically obtruded itself into the space belonging to the structures of the body itself; and mechanically also, induces irritation and destruction of vital parts. But moreover, like the creeping parasite climbing upon, and clinging unto, the mighty tree of the forest, it lives, and grows and flourishes, upon the life sap of a structure alien to itself, and kills it while embracing it.

It is not impossible but cancer and kindred affections, strictly parasitic, and in their nature incurable, may represent the constitutional affiliation of certain persons, with forms of vitality that have existed upon the earth, in some of the lower orders of animated beings, in ages long gone by.* It is not incredible in other words, that in certain persons or families, there may be hidden the infinitismal nucleus of certain cell life, which has been eliminated in the lapse of ages, from the great mass of mankind. This nucleus, like latent germs of the infusoria may lie dormant, possibly for generations, and yet, being always potentially capable of assuming propagative activity, it lies in wait, beyond the ken of mind, till the accidental circumstances favorable for its vitality arrive, when it bursts into fatal activity.

It is clear that, as the brain has nothing to do in originating cancer, no application of impressions upon the brain, can have any efficiency in curing it Like the kindling flame threatening a conflagration. The only hope is to destroy it, at the point in which it is first perceived.

Certain other diseases, dependent upon defective nutrition, either by food, or air, or any essential component of the human fabric, are not, rightly considered, diseases at all. The brain is not responsible for them, nor can simple impressions upon the brain, remove them. It would be as rational to attempt to relieve

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*J. Mueller maintains, "that the elementary structures of all morbid growths, resemble in every respect, the structures presented in the *several stages* of development of the elements of the healthy tissues of the body."

starvation, by inducing certain states of the brain through appeals to its active sensibilities, by the operation of mere drugs. All such diseases, so-called, are instances of partial starvation, either of the whole structure, or of certain parts of it.

Thus in scrofula, proper food, fresh air, and cod-liver oil as food are administered. And in other words states of defective nutrition from the absence of proper alimental supplies, iron is administered as a food, or phosphorus, or some other article adapted to the peculiar inanition present.

All such practice is really a branch of Hygiene, and should be so classified.

It will be perceived that the right course to pursue in this class of cases, also, cannot be considered with justice, as exceptions to the general rule, that diseases are the results of states of the brain, which are incompatible with a continuance of the morbid processes.

It will not perhaps be out of place to adduce further illustrations of the apparent exceptions to the general rule, above stated.

Structural changes, producing the most grave and fatal effects, may arise as the consequences of previous acute diseases; such as have originated in fact from the operation of morbid impressions upon the brain. And yet these changes may be strictly mechanical, and, in their own nature wholly disconnected with morbid states of the brain; and their removal can never be effected by any appeal to the brain power.

As an example; certain structural conditions of the heart, arising possibly, from rheumatism may be noticed. Some of these states, are as truly mechanical difficulties, as though they were dependent upon direct pressure by the finger, upon the heart or great blood-vessels. And the train of evils consequent upon such mechanical causes; as dropsy, or conjestion of the brain, or lungs, must be regarded as not vital, or connected with brain power, but strictly mechanical, and dependent for relief finally upon the removal of the mechanical obstruction.

It is indeed, true, that in such a condition of health, an impression upon the brain approximating toward a state of disease, as by the use of digitalis, is sometimes necessary, in order to prolong life.

Again, take the case of disease of the brain itself, of an organic character. Here will be plainly observed, what is often obscurely perceived, in various diseases, two sets of symptoms. One, depending upon the impaired, or lost function of the diseased part itself; the other set, depending upon a certain change in the bulk and consistency of the part affected. These latter symptoms must be regarded as depending upon the operation of mechanical causes; or those causes which arise from the presence of a change in the texture of important organs.

A callous tumor in the brain, will cause the destruction of the functions of a portion of that organ, either by pressure, or inducing atrophy, or in some other way. The brain in this case, is in precisely the condition functionally, that it would be, if that particular portion was scooped out, or had never been developed.

But suppose a certain portion of the brain is the subject of so much pressure from the presence of a tumor, or foreign body, as a bullet or a blood clot, as perfectly to benumb, or suspend the functions of, that portion for the time being. And suppose, moreover, as has been the fact, that the benumbed portion happens to lie in the track of the connecting sympathies of present suggestion and present association, with the past life, so that the present, cannot be brought into relation with the past. Here, the memory, or recollection of the past would be entirely destroyed; while new ideas aroused since the local injury was received, might, by new channels of association, be remembered very well. Now, let it be presumed further, that the bullet, or clot causing the benumbing pressure, be removed by a surgical operation. This has been done a great many times. The paralyzed or benumbed brain resumes its functions. Suggestion and association arouse old memories again, and the power of recollection is completely restored.

This illustrates exactly, how certain morbid states of the brain, not mechanical, such as temporary paralysis, may cause a loss of memory, sometimes complete, sometimes partial, as of certain words, or parts of other words, or names; and it also explains how time and remedies may eventually remove this paralytic state, and restore the faculty of memory in its full integrity.

This illustration in fact, discloses in minature the modes in which morbid impressions, may so affect the brain or portions of it, that the final effects may be numberless in their symptoms, and widely dispersed in their several seats of activity. And these morbid processes, depending upon unhealthy brain impulses, may act, not through mental phenomena only, but even more commonly, through the organic system of nerves, and entirely independently of sensation, thought, or volitition.* These doctrines and facts conclusively imply the additional principle; that therapeutical applications should be made to the seat of the morbid state within the brain, in order to remove diseases, and re-establish health. It is probable that enough has been said, to make clearly perceptible, the great central ideas, around which, these several different illustrations are grouped:

1st. The brain is the great central power, whence radiate the forces of health, disease, and recuperation.

2nd. The laws of brain action, are the same, whether operating upon the organic system, or upon the mental faculties; and whether guided by healthful, or morbid, or therapeutical impulses.

In conclusion of the whole subject of Transcendental Medicine; it is plain that the mere results of morbid processes, are, and must be, infinite in number, and complicated, and often obscure in character. To treat these results as they arise in view, and in accordance with their varying appearances, is merely an empirical way of handling objects of endless variety, and beyond the reach of numerical computation. No human intelligence is equal to the task, or ever can be.

It is far more rational to search for the comparatively few great natural forces engaged in producing the innumerable phases of health and disease, and as much as possible place upon them the appliances of modification or change, required to effect therapeutical results. In order to do this in a philosophical manner it is right to inquire into the laws of activity, and of the impediments surrounding the free administration of such laws, which are found in the brain,—that great representative of those external forces of nature which impress and modify the vital powers.

This will at once point out the propriety of classifying the chief representatives of therapeutical activity, in accordance with, and in relation to, the great external operative powers of nature. Thus

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[*] "I have tried to show that there is a power of the nervous system, whatever it may be which is of a mental order; that is it has psychological attributes, psychological faculties, mental faculties as our common mind; but it is infinitely superior to our ordinary mental power. It is that other power which makes discoveries, not our common power. These discoveries come like a flash to us. There is therefore a power besides our mental power which must be located somewhere." Brown Sequard, in *Brit. Med. Journal*, Sept. 2, 1876.

This phenomenon of inspiration, called "unconscious cerebration," or genius, is most likely the result of a more than common harmony between the organic nervous system with its in-the assimilation of the properties of quinine with the daily periodicity of magnetism, will be perceived; as well as the correspondence of nux vomica with electricity or galvanism. In fact, each of the leading therapeutical agents will be recognized as personating, if it is not a reservoir of some great force of nature to be applied to the wants and assistance of the brain, when, from accidental or morbid causes, it becomes incapable, from its own resources of supplying to the general system, those influences and impressions necessary to maintain the general health.

Therapeutical agents thus classified, would tend to bring practical medicine into a rational and determinate form; and in a manner infinitely satisfactory, promote the value and precision of medicinal appliances to the cure of diseases.

The intention of the foregoing inquiry of course has nothing to do with the great mass of secondary morbid phenomena, following primary occult causes inaugurating morbid activity; such as the mechanical, infusional, and septic processes represent, nor with their therapeutical relations.

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Art. 3.—Duality of the Brain.

Read before the Meigs Co. Medical Society.

By J. Barr Smith, M. D.

Mr. President and Gentlemen:—As you are all familiar with the anatomy of the brain, I will occupy no more of your time with the anatomical construction than will be necessary to illustrate my position.

1st. The brain is a duality.

2nd. Each one of the pair is seperate, distinct and complete in

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sensible operations, and the ordinary mental processes. More properly, it should be referred to the exquisite firmness of certain brain organizations, through which the reactions and impressions of organic nervous acts are received upon the brain. Such mental, and organic, nervous combinations, though insensible, in the ordinary sense of the term, yet seem to produce ideas, new and surprising to the mind itself, as well as to mankind at large. The complete co-operation of the two systems of nerve power, by no means common, creates practically, a mental exaltation or dominion, far more perfect than either of its component parts, separately, can claim to be.

itself. Each one of the pair performs all its functions independent of its fellow. The functions of the brain are: the perception of an impression, volition, memory, and the power of originating motion. Therefore, each one of the pair has a faculty of the perception of an impression, volition, memory, and the power of originating motion.

Reasoning from analogy: Physiologists for the sake of convenience usually divide the body into a number of systems, each system consisting of a number of organs subservient to the same purpose in the economy. These organs are always found in pairs, except the outlets and reservoirs, the functions of which are passive, as they perform no active duty; for instance, we have two arms, each one of the pair complete in itself, capable of performing the same offices alone and unassisted by its fellow. Each arm has the same number of bones, muscles, etc., arranged in the same manner; so also of the lower extremities; so also of the organs of our senses, hearing, seeing, etc. The nerves are given off in pairs; the bronches. Now, when all the organs of the body of which we have positive knowledge are found in pairs, is it not reasonable to infer that the brain also consists of a pair as seperate, distinct and independent as the arms.

Reasoning from cause to effect and vice versa from effect back to cause: One of the pair of brains can and does recall impressions its fellow never had any perception of. We can and do call into activity one of the pair whilst its fellow is dormant. Each one of the pair may and does receive distinct impressions at the same time. A writing master can trace with a pen on paper a letter of the alphabet that will extend exactly to a certain line above and to a given line below; he can then make an exact copy of it, or a dozen if he wishes, so much alike you cannot detect any difference. To accomplish this he must judge of the exact distance to move his hand, the exact directions to move his hand, and the exact position to hold the pen. The power of originating motion is a faculty of the brain, not of the hand nor arm. His hand, therefore, moves as directed by the brain—the result of education. Let a man who has never learned to write undertake in like manner to make a dozen copies of the same letter. His arms may be as strong, his nerves as steady, his brain as active as the writing master. He may have all the physical qualifications, yet, he cannot make two letters exactly alike; it must be learned.

Now let the same writing master take the pen in his left hand and undertake to make a copy of the letters he has traced with his right hand, and he can no more do it than the man who has never learned to write. Why? The nerves that supply the right arm are given off from one of the pair of brains, the nerves distributed to the left arm from the other one of the pair. One of the pair of brains has been educated to move the hand the required distance and direction, whereas the other one of the pair has not been so educated.

If a man has only one brain, one memory, one source of originating motion, the distance and direction learned, the brain could and would direct the motion of either hand indiscriminately to move the required distance and direction. The writing master has educated but one of the pair of brains—the one correlated to the right arm, consequently to write with the left hand he must also educate the one of the pair correlated with the left arm's hand, and this is true of all the organs of the body. Dancing masters frequently find their pupils learn to execute all the movements they require with one foot readily, and almost impossible to learn and execute the proper movements with the other foot of the pair. Now if the brain is a unity; if the pupil has but one memory, one source of originating motion, one volition, the time distance and direction once learned, the feet moving only as directed by the brain would of course be equal, the same time, distance and direction being required.

Again, we have a pair of organs communicating sound to the brain—one communicating directly with the right the other with the left brain. The time as well as the volume or force with which it reaches the brain must vary according to the direction from which the sound proceeds, and the position of the organs of hearing. · If the brain is a unity this would destroy the harmony. Either one of the pair of brains has prehension of the sound and the other has not, or each pair receives the sound independent of its fellow. So also of sight, the rays of light from one object impinge on both eyes, two images are conveyed to the brain. If the brain is a unity we would of course see every object double.

Again, each one of the pair of brains can be active at the same time. A school teacher can add up a column of figures correctly and listen at the same time to a scholar recite a lesson. A man can write a letter on one subject, and at the same time listen to a conversation on a different subject. A man could as easily move one foot or one hand in different directions at the same time as one brain could act in different directions at the same time - reasoning from pathology.

The power of originating motion is a faculty of the brain, when the brain is injured so that the motion of a part is interfered with. If but one of the pair of brains is injured the paralysis is always on the side correlated to the brain injured. If the brain is a unity it would be impossible to paralyze one arm without at the same time paralyzing both. Unilateral sweating from one of the pair being diseased could not result if the brain is not a duality.

Reasoning from the anatomical construction of the brain: The normal brains of two individuals differ in size, number and arrangement of convolutions, depth of anfractuosities as well as intellectual power and disposition. So also do the pair of brains differ in the same individual; the size, convolutions, etc., of the right differs from the left. By keeping in mind that the brain is a duality, and the pair differ in their formation in the same individual, we can easily understand the many apparent contradictions we find in the manner, disposition, etc., of the same individual.

Recapitulation.

1st. The brain is a duality because all the organs of the body of which we have positive knowledge are found in pairs, except the outlets and reservoirs.

2nd. One of the pair of brains may have the perception of an impression when its fellow has not.

3rd. One of the pair may be educated and the other not.

4th. Each one of the pair may have the perception of different impressions at the same time.

5th. When only one of the pair is injured so as to destroy the power of originating motion, the paralysis is only on one side of the body.

6th. The shape, size, convolutions, anfractuosities, etc., of one side differs from its fellow.

7th. We can in no other way account for the contradictions in men's characters, and the peculiarities of many diseases.

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Art. 4. The Doctrine of the Pulse. An Analysis of Its Characters, and Summary of its Indications.

By REUBEN A. VANCE, M. D., Gallipolis, O.

In a paper read before the College of Physicians in London, July 7th, 1768, that learned physician and accurate clinical observer, William Heberden, expressed himself in language as true to-day, as it was appropriate when uttered. He said:

"All who begin the study of Physic must find in the doctrine of the pulse, as collected from medical writers by Bellini and others, a great deal which they do not understand; and all, I imagine, who have advanced a little in the practice of Physic, can have very little doubt of its not being understood by the authors themselves. Such minute distinctions of the several pulses, if they do not exist chiefly in the imagination, at least have little place in the knowledge and cure of diseases. Time has, indeed, so fully set them aside that most of these names of pulses are now as unheard of in practice, as if they had never been given, and it may be doubted whether some of those which are retained, are perfectly understood, or applied by all, to the sensations, and have, in every one's mind, the same meaning. I have more than once observed old and eminent practitioners make such different judgments of *hard*, and *full*, and *weak*, and *small* pulses, that I was sure that they did not call the same sensations by the same names." *

The examination of the pulse is the one procedure which the unanimous voice of the Medical Profession pronounces the most valuable of all the devices to which the physician can resort. It is, moreover, one equally important in diagnosis and progress. In all civilized countries at certain times, and in China and the antipodes at the present day, the leaders of medical opinion accord to the pulse the power of indicating morbid changes which are discoverable by no other method. One of the famous predecessors of Lænnec and Andral in the great Charity Hospital at Paris, M. Bordou, the Court Physician of Louis the Fourteenth, wrote four volumes on the Pulse. When visiting patients in the wards, accompanied by crowds of admiring and astonished physicians and students collected from all parts of the world, he rarely enquired for symptoms, or asked questions about the case, but founded his opinion of the nature and stage of the disease upon the indications he discerned in the pulse. His judgment was so accurate, and his diagnosis so acute, that his name ranks high among the renowned clinical instructors of that famous School of Medicine. Physicians who have had opportunities for personal observation in China, report that, along with many whimsical conceits, there is to be found a wonderful amount of practical sense in the doctrine of the pulse, as inculcated and practiced by the medical men of the Celestial Empire.

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* HEBERDEN. *Commentaries on the History and Cure of Diseases* 3rd Edition. London, 1803.

An accomplished clinical teacher remarked in my presence, some time since, that of late years, there was a manifest disposition on the part of students to look upon the pulse, as an index of morbid phenomena, with aversion. At Medical Colleges they heard much of modern instrumental appliances which lightened the labor of the diagnostician in every department of practical medicine, and an idea has become prevalent that such painstaking regard to the indications afforded by this venerable guide, as were necessary to master its difficulties, could be ignored, and reliance had upon some of the many methods of physical research, which were supposed to accomplish the same result, with less expenditure of time and labor. Dr. Guy, in his excellent remarks on the pulse, in the seventh edition of "Hooper's Physician's Vade Mecum," refers to the fact that the "fallaciousness" of the pulse has passed into a proverb, and thinks that the proverb has furnished a good excuse for the neglect with which it has been treated. He proposes the substitution of the word "difficult" for "fallacious," in the hope that a motive may thus be excited for industry, instead of the present apology for idleness.

Physicians who have been long in practice acquire a practical skill in forming conclusions from the indications their fingers appreciate. Guided solely by tactile impressions derived from the artery at the wrist, they are enabled to form judgments as to the state of the patient which all the resources of modern diagnosis, carefully employed, serve only to confirm. Yet such men can rarely explain in words, the peculiar sensations upon which their opinions are based. They have become endowed, however, with what the Fathers of Medicine so happily designated the "tactus eruditus." Their fingers receive the same empirical schooling that the ear of the diagnostician acquires, who, for many years, devotes his attention to the auscultation of every case of pulmonary disease which comes under his observation. If the latter cannot analyze the sounds which come from the lungs, he is never able to register in his mind clear and vivid conceptions of the physical signs he hears, and as a consequence, his memory is not aided by the powers of association which would have been brought into play had he habitually accustomed himself to distinguish the acoustic characters of the sounds emanating from different conditions of the respiratory organs. However valuable such skill may be to the possessor, the latter is unable to communicate it. and needs constant practice to preserve it intact. The physician, whose practical touch enables him to appreciate all-important indications in a pulse, which his less experienced colleague fails to detect, has a personal advantage which is valuable beyond all estimation, but unless he can analyze the tactile sensations communicated to his fingers by the pulsating vessel, and be able to isolate and appreciate each one separately, he can never give in words a clear explanation of the grounds upon which his judgment of the pulse is based. If his knowledge of the analytical characters of the pulse is defective, he is placed on precisely the same footing as the empirical, but the acute diagnostician of thoracic diseases, who is unacquainted with those principles of acoustics which would enable him to explain and illustrate the signs upon which his judgment of pulmonary disorder is founded.

The brief quotation from Dr. Heberden, with which I introduced this subject, touches the main difficulty in the case. With a few changes in terms, his remarks would serve as an appropriate criticism on the literature and practice of auscultation and percussion prior to the past twenty years. Since the writings and teachings of Flint have established the principles of physical research upon the firm basis of acoustic science, by insisting upon a pulmonary analysis of the auditory phenomena of health, with which all deviations, the result of disease shall be compared, the differences being noted in terms which are either common to all sounds, or at least to those sounds which emanate from the chest, the doubts and uncertainties which enveloped the subject before, have practically disappeared.

In describing the normal and pathological characteristics of the pulse, the chief source of confusion is the employment of terms which are susceptible of more than one interpretation. There are scarcely any two works treating of the subject in which this fault is not to be found. In the voluminous records of authors who have written on the subject, in detail, the criticism of Heberden is eminently applicable. Without entering into details which are confusing and uninteresting, I would like to direct attention to certain points pertaining to the practical study of the phenomena incident to the pulse in health.

When the ear is applied to the præcordial region the number of the revolutions of the heart can be counted, while the celerity and force of the contraction and the regularity of its rhythm is readily applicable. With the fingers applied to the radial artery, the same facts can be learned, even more readily. From the pulse we derive information not only of the number, force, regularity and equality of the heart's cantractions, but also, of the quantity of blood sent forth at each beat, and the condition of the nervous system. To do this, we must pay careful attention to the tactile sensations which can be appreciated by the fingers placed over the artery at the wrist.

In describing the characters of the pulse, there are certain terms the meaning of which should be clearly understood.[1] The necessary similarity of these is not so liable to lead to confusion as is the fact that in other connections, some of these words are used in a different sense. But if it is borne in mind that so far as the phenomena of the pulse is concerned, these terms have but one meaning, and the specific signification given with each when defined, there need be no trouble.

There are five main points upon which the physician seeks information when he applies his finger to an artery. They are:

1. The number of pulsations;
2. The celerity of the pulsation;
3. The expansibility of the artery;
4. The compressibility of the artery; and
5. The rhythm of the pulsations.

The following characters can be distinguished by the finger:

1. As regards the number of pulsations per minute, the pulse is called *frequent*, or *infrequent*.

2. As regards the time occupied by each beat, not including the interval between it and its successors, the pulse is called *quick*, or *slow*.

3. As regards the degree in which the artery dilates in length and breath, the pulse is called *large*, or *small*.

4. As regards the compressibility of the artery, the pulse is called *hard*, or *soft*.

5. As regards the regularity of the rhythmical succession of beats, the pulse is called *regular*, *irregular*, or *intermittent*.

The terms descriptive of the different characters of the pulse are now generally used as above written. Occasionally their Latin equivalents are employed. In all but the more recent works some of the Latin terms are evidently used with a different signification from what they now convey. This has led to much confusion, which makes the determination of the exact sense of the terms employed in the nomenclature of the pulse an object of so much importance. To recapitulate:

1. The terms employed to express the rapidity of the pulse are *frequent* and *infrequent*. Their Latin equivalents are *pulsus frequens*, *pulsus rarus*.

2. The terms employed to denote the time occupied by each beat, not including the interval between it and its successor, are *quick* and *slow*. Their Latin equivalents are *pulsus celer*, *pulsus tardus*.

3. The terms employed to denote the degree in which the artery dilates in length and breadth are *large* and *small*. The Latin equivalents are *pulsus magnus*, *pulsus parvus*.

4. The terms employed to denote the degree of compressibility of the artery are *hard* and *soft*. The Latin equivalents are *pulsus durus*, *pulsus mollis*.

5. The terms employed to denote irregularities of rhythm are called *irregularity* and *intermittency*. No Latin equivalents are used.

The frequency is the character most generally noted in the examinations of the pulse, and as it is one readily estimated, and of great value in the diagnosis of disease, I shall direct your attention to certain points pertaining to it, in health, and the modifications induced by different circumstances of a physiological character.

The number of recorded observations relative to the rapidity of the pulse, under almost all conceivable circumstances and conditions, is something wonderful. The variations between different observations, made under similar circumstances, have been noted, and the immense mass of material accumulated in the pages of medical literature, has been searched by more than one physiologist, anxious for information on some specific point. The consequence is, that rich as is the practical information collected on the subject, there is no one work, treatise or pamphlet, that concisely embodies all, or even a respectable portion of the conclusions that are justified by the facts that are recorded by different observers.

In health, the frequency of the pulse varies with:

1. Age.
2. Sex.
3. Posture.
4. Time of Day.
5. Sleep.
6. Exercise.
7. Food.
8. Mental Emotions.
9. Temperature.
10. Atmospheric Density.
11. Plethora, or Anæmia.
12. Systemic Vigor.

1. *Age.*—The relative frequency of the pulse varies at the different periods of life, but the wide limits over which this variability extends, seems not to be generally appreciated. In young infants the pulse is very rapid. Heberden found the number of beats per minute to be between 130 and 140 in a sleeping child, on the day of its birth. According to Quetelet, the numbers immediately after birth, for both males and females, are as follows:

Maximum, 165; Minimum, 104; Mean, 135; Range, 61.

From this it seems that the range, in the limits of health in young infants, is so very great that the mere frequency of the pulse is little to be relied upon as a criterion to health.

From infancy to middle life the pulse progressively diminishes in frequency, to increase again slightly in advanced years. In the following table is a summary of from twenty to twenty-five observations made on individuals of from one to twenty-five years of age, inclusive. The total number of observations were between six and seven hundred, and were made by Dr. Guy, of Kings College Hospital, London. It shows the average and extreme numbers of the pulse, without distinction of sex, time of day, or posture of the body.

TABLE I.

THE FREQUENCY OF THE PULSE AT DIFFERENT AGES.

Age.	*Maximum.*	*Minimum.*	*Mean.*	*Range.*
1	158	108	128	50
2	136	84	107	52
3	124	84	106	40
4	124	80	105	44
5	133	80	101	53
6	124	70	95	54
7	128	72	90	56
8	112	72	92	40
9	114	65	87	49
10	120	76	91	44
11	100	56	84	44
12	120	70	94	50
13	112	70	84	42
14	114	68	86	46
15	112	60	84	52
16	104	66	83	38
17	102	54	76	48
18	104	58	74	46
19	108	60	76	48
20	106	52	72	54
21	99	59	74	40
22	96	41	68	55
23	100	60	74	40
24	84	52	71	32
25	88	59	73	29

This table was prepared from notes which recorded the age and frequency of the pulse in individuals free from disease. The examples of each enumerated age were then collected and the most and least frequent pulse was noted in the proper place in the table. Thus, of all the persons twenty-one years of age, the most frequent pulse was ninety-nine, and the least frequent fifty-nine. By subtracting the smaller number from the larger we have the range, or the greatest difference observed in the pulse in parties of the same age. In the case cited, this is forty—the same number that is marked in the table to denote the range in the pulse at twenty-one years of age. The numbers given as the mean rate of the pulse are obtained by adding together the rates at which the pulse beat in each individual of the same age, and dividing the sum by the number of the persons examined. This column contains the closest approximation we can arrive at, as to the normal frequency of the pulse in persons at the ages specified.

In the following table Dr. Guy records the result of a series of observations made at the different periods of life specified. The persons examined were in perfect health, and at the time the pulse was counted they were fasting, and at rest. The time selected for making the observations was midday, and the pulse was counted while the person was sitting. The table is based upon twenty-five examinations at each period of life noted.

AGE.	MALES.				FEMALES.			
	Maxim.	*Minim.*	*Mean.*	*Range.*	*Maxim.*	*Minim.*	*Mean.*	*Range.*
1 week.	160	104	128	56	160	104	128	56
2—7 years.	128	72	97	56	128	70	98	58
7—14 "	108	70	84	38	120	70	94	50
14—21 "	108	60	76	48	124	56	82	68
21—28 "	100	53	73	47	114	54	80	60
28—35 "	92	56	70	36	94	62	78	32
35—42 "	90	48	68	42	100	56	78	44
42—49 "	96	50	70	46	106	64	77	42
49—56 "	92	46	67	46	96	64	76	32
56—63 "	84	56	68	28	108	60	77	48
63—70 "	96	54	70	42	100	52	78	48
70—77 "	94	54	67	40	104	54	81	50
77—84 "	97	50	71	47	105	64	82	41

From careful study of these two tables, but especially the last one, it can be said that the pulse of an adult male is 70, that of a female 80; the highest number is somewhat less than 100 in the adult male, and somewhat more than 110 in the adult female; the least number in each is about 50. The range, or difference between the highest and the lowest numbers, extends from 28 to 56 in the male—average, 43; and from 32 to 68 in the female—average, 48. The lowest number recorded in the table is 46; the lowest observed by Floyer was 55.

An examination of the reported cases of physicians, who have paid particular attention to the subject, will show that much lower frequencies have been met with in healthy persons. Heberden records 40, 30 and even 26 beats in a man whose "chief distemper" was the age of four score; Fordyce, 26, in an old man in the Charter House, London; and Guy, in a dyspeptic young man, 38 beats, and in a medical man greatly reduced by a succession of exhausting maladies, he counted as low as 30 beats. Dr. Thomas H. Bailey, of New York, relates the case of an acquaintance whose pulse beat at the rate of 38 per minute, and who when suffering from acute inflammatory disease, with high fever, had a pulse less frequent than the average in adults. Pulses as low as 16, and even 14 beats are on record, but it is doubtful if the persons in whom they occurred were healthy. Falconer has observed very infrequent pulses in women—one of 36 and another of 24; and Dr. Graves mentions one of 38. It is not probable that exceptional cases of very great frequency of the pulse in health have been observed, but I never met with one, neither can I discover the record of any.

In disease, pulses extraordinarily infrequent have been observed; one case is reported by Piorry in which 17 strokes to the minute were counted; in a case of epilepsy, by Sir W. Burnett, the number was 15; Heberden has told of one from 12 to 16 per minute; and in a remarkable case of injury to the upper part of the spine, followed after an interval by fits of syncope, with convulsions, Mr. Holberton, in the Medico-Chirurgical Transactions, 1841, reports that the pulse was usually 33, but fell during the fits to 12, 10, 8, "and at times when the patient was quite insensible and not in a fit," seven and a half in a minute. Dr. Guy remarks that these low frequencies of the pulse are little affected by stimuli generally, and as in a case reported by Dr. Graves, remain unaltered by febrile attacks. During the convalescence from fevers and other exhausting maladies, the number of pulsations per minute may become very small, and a very infrequent pulse has been specially noted among the anomalous symptoms of diphtheria. Very great frequency of the pulse is a common result of disease. Dr. Joy states that in a case of acute hydrocephalus he has counted 200 beats per minute. Guy reports the statement of a medical man who claims to have counted his own pulse during an attack of palpitation, when it beat 250 to the minute—a statement corroborated by another physician who was present when he was sick. Heberden has counted a pulse of 180; Guy, one of 264—at the rate of 9 beats every two seconds.

Sex.—An examination of the second table will show that the pulse of the female has very nearly the same degree of frequency as that of the male up to the age of seven years, but that at more advanced periods of life, the female pulse is in excess by from six to fourteen beats, the average excess being nine beats. The pulse, too, has a greater range in the female, than in the male—that is to say, there is a great difference between its highest and lowest numbers.

The following approximate figures may assist the memory:

At Birth	the pulse is	140	per minute.
In Infancy	“	120	“
“ Childhood	“	100	“
“ Youth	“	90	“
“ Adult Age	“	75	“
“ Old Age	“	70	“
“ Decrepitude	“	75–80	“

An addition of about ten beats will have to be made to the last three lines to give the numbers in the female.

Posture.—The position of the body of the person whose pulse is under examination, has great influence on its frequency. The mean frequency in a large number of healthy adult males in whom the pulse was noted in the different postures of standing, sitting, and lying, was as follows:

1. Standing, 79; Sitting, 70; Lying, 67. In these experiments all exceptions to the general rule are included.

2. Standing, 81; Sitting, 71; Lying, 66. All exceptions to the rule were excluded in this instance.

In the same number of adult females, in good health and of the same age, the mean frequency was as follows:

1. Standing, 89; Sitting, 82; Lying, 80; including all exceptions to the rule.

2. Standing, 91; Sitting, 84; Lying, 80; excluding all exceptions to the rule.

The extremes are very remote from these mean numbers. Thus in the male, Guy has observed the difference between standing and sitting to be as high as 26, and as low as 0; that between sitting and lying as high as 18, and as low as 0; and that between standing and lying as high as 24, and as low as 0. In the female, in like manner, differences scarcely less marked have been noted. Numerous exceptions also exist to the rule that the pulse is more frequent sitting than lying. and standing than sitting, The effect of change of posture is nearly twice as great in the male as in the female, and nearly three times as great in the adult as in the years of early youth.

One evening, when this subject was under consideration, I had an opportunity of making a practical demonstration of the influence of posture upon the pulse, which was very satisfactory, although the results were far from showing anything of a striking nature. A class of seven medical students, studying Auscultation and Percussion with me, were congregated in my room in Bellevue Hospital, when it was proposed that each one should be examined and the state of the pulse noted in the different positions of standing, sitting and lying. They were all young men in good health, from 23 to 31 years of age, who so far as immediate surroundings and daily course of life were concerned, were similarly situated. In a standing position, the maximum pulse was 76—the same in two of the number; the minimum, 68. Sitting, the maximum, 69; minimum, 65. Lying, two were 67, one 59. The average pulse standing, was 72; sitting, 67; lying, 63. The greatest difference between standing and sitting was 7, the least 4. Between sitting and lying the maximum difference was 4, the minimum 1. Between standing and lying, the greatest and the least variations were 9 and 5, respectively. The mean difference between standing and sitting, was 5; between sitting and lying, 4; and between standing and lying 9.

In a more extensive series of experiments, embracing many hundred observations, I was struck with the fact that the influence which change of posture has upon the pulse, becomes more marked in proportion to the frequency of the pulse in the person examined. This is a very suggestive fact, and one that impressed me very forcibly when endeavoring to tabulate the results deduced from my observations. In searching the various works treating of the subject, I found that Guy had not only stated the same fact, but had gone much further—he had arranged tables showing the peculiar differences exhibited by the two sexes, in this respect They show the following facts:

MALES.

Frequency of Pulse.	51–70	71–90	91-110	111–130
Standing. - - - - - -	61	81	101	120
Sitting. - - - - - -	55	68	82	93
Lying. - - - - - -	52	67	74	81
Difference bet. Standing and Lying.	9	14	27	39

FEMALES.

Frequency of Pulse.	61—80	81—100	101—120
Standing.	71	92	108
Sitting.	67	85	97
Lying.	63	83	90
Difference bet. Standing and Lying.	8	9	18

In an increase of frequency of from 50 to 130 in males, and from 60 to 130 in females, the examples quoted illustrate the fact that a change of position produces effects which are more intense, the higher the pulse. A comparison of the two tables also shows that this peculiarity is comparatively slight in females, as compared with males. The numerous exceptions to the rule that the pulse is more frequent sitting than lying, and standing than sitting, which can be observed when the pulse is at its normal rate, decrease as its frequency increases, and entirely disappear when the experiments are conducted on a person whose pulsations are over 90 when lying. Guy also states that the effect of changes in posture are greater in the morning than they are on the same pulse in the evening.

Period of the day.—Among the influences which I enumerated as acting on the pulse in such manner as to effect its frequency, was the period of the day. Aside from the labors and excitement of the waking hours, the more active tissue changes which occur at that time, together with the the whole host of nutritive changes which we have no means of estimating but which alternate much the same as the more striking conditions of sleep and wakefulness, we should naturally expect to exert such an influence over the circulatory system as would manifest itself in appreciable variations in the pulse. The fact is, that in healthy adult males, the pulse is more frequent in the morning than in the evening, and diminishes progressively as the day advances. In females, the same rule holds good. While it is probably true that this rule is invariable in *all* healthy persons, yet there are so many instances in persons who pass for well in which the pulse becomes more rapid, as the day advances, that these apparent exceptions must always be borne in mind. Comparatively rare in males, the exceptions are very common in females. It is a physiological point with such important bearings upon diagnosis and pathology, that no amount of labor should be spared to solve it. Without dwelling further upon it, I would simply state that I know of no one circumstance which would sooner lead me to apprehend the existence of some lesion in an apparently healthy and even robust person, than the fact that the pulse increased in frequency as the day advanced.

Sleep and Exercise.—The frequency of the pulse varies under these diverse conditions—the one diminishing, the other increasing it. As is well known, the pulse falls considerably in sleep. Quetelet found a difference of 10 beats in an adult woman; the same in a girl from three to four years old; and in a boy from four to five years old, a difference of 16 beats. So far as I am able to form an opinion, I think there is a greater difference between the sleeping and waking pulse of a female than of a male, but in neither am I inclined to believe the difference is so great as is sometimes stated. One source of misapprehension arises from taking the healthy pulse when the person is standing, and then comparing it with the pulse of the same party not only when asleep, but when lying down—the influence of change of posture not being taken into consideration. The pulse of a healthy male adult is about 10 beats per minute less when asleep than when lying awake; the female, less by from 12 to 14.

The muscular exertion of active exercise increases the pulse more that any other cause, and may even run it up to three times its natural frequency. From experiment, Guy ascertained that severe and long continued exertion causes the pulse to suffer the same collapse as the other functions, when it falls much below its natural rate. Passive exercise also excites the pulse.

Food and Mental Emotion.—The influence which food exerts over the frequency of the pulse varies with its nature and constituents. Little influenced by vegetable substances, it responds more readily to animal food, especially when savory, and eaten with a relish, but it is easiest excited by warm, stimulating soups.

That mental emotions affect the pulse is one of the oldest of the recorded facts of medicine. Perhaps as convincing arguments as could be adduced to show that the ordinary divisions of the Passions into "Exciting" and "Depressing," took its origin from the observed effect which they respectively exercise over the circulatory organs. The emotion which the presence of a physician induces is well known, and the caution not to examine the patient until the excitement subsides, is as old as Celsus.

Temperature and Density of the Atmosphere.—The influence of heat in stimulating the circulation is well known to any one who ever took a Turkish bath. The ordinary frequency of the pulse may be more than doubled when exposed to a temperature of 260 to 300 degrees. The influence of atmospheric density has been ascertained by those who have ascended high mountains. Thus De Laussure found the pulses of his companions, which in Chamourix beat 49, 66, and 72 times, respectively, raised to 98, 112, and 100 on the summit of Mount Blanc.

Plethora and Debility.—In simple plethora, the frequency of the pulse is increased; in simple debility, it is diminished in frequency. When either borders on disease, or when the latter is extreme, there is an increased rapidity of pulsation.

To Recapitulate.—The common causes of an increased frequency of the pulse in healthy persons are the following: Muscular exertion, active and passive exercise, a change from a posture requiring less muscular effort to one requiring more exertion, food, especially animal food, soups and alcoholic compounds, a high temperature, diminished pressure of the air, extreme debility, plethora, sleeplessness, and the exciting passions and emotions.

On the other hand, the principal causes of diminished frequency are: Sleep, fatigue when not carried to excess, continued rest, debility without disease, the depressing passions, cold applied externally, or taken internally, increased atmospheric pressure, a change from the standing to the sitting, or from the sitting to the recumbent posture, and the inverted position of the body.

The frequency, although an important character, is but one of the elements of the pulse. Other qualities besides the rapidity with which the strokes succeed each other, demand the practitioners attention. The type of the healthy male pulse is one that is *regular*, *moderately large*, *compressible*, and *rising rather slowly* under the finger. The *frequency* varies with the age and other circumstances already detailed; the *celerity* cannot be better expressed than by saying the vessel seems to rise slowly under the finger; in *expansibility*, or rather the degree in which the artery dilates in length and breadth, it is large, rather than small; it is *compressible*; and in *rythm*, regular. The pulse of the female, like that of the child, as compared with the male pulse, is normally *smaller*, and *quicker* in the beat.

The impression communicated to the finger by the pulse is compounded:

1. Of the beat of the heart;
2. Of the reaction of the aorta and large vessels;
3. Of the condition of the coats of the artery itself;
4. Of the consistence of the blood; and
5. Of the state of the aortic valves.

1. The characters of the pulse which depend upon the degree and manner of the heart's contraction are the following:

Number of the heart's contractions. Pulse *frequent*, *infrequent*.

Regularity of the heart's contractions. Pulse *regular*, *irregular*, *intermittent*.

Quality of blood expelled by the heart. Pulse *large*, *small*. If the quantity at each beat is the same, the pulse is *equal*; if different, *unequal*.

Time occupied by each contraction of the heart. Pulse *quick*, *slow*.

2. The influence of the loss of the elastic reaction of the large arterial trunks on the pulse, is well shown in dilatation of the aorta and anneurism. The firm, strong reaction of the healthy elastic coat produces a *steady* pulse; the absence of this reaction occasions the peculiar *thrilling* pulse of aortic disease, and of anneurism. Variations in the degree of elasticity of the whole arterial system may modify the pulse as follows:

Elasticity of the arteries increased. Pulse *hard*—a condition also expressed by the terms *strong*, *sharp*, *wiry*, and *compressible*.

Elasticity of the arteries diminished. Pulse *soft*—also designated *weak*, *yielding*, and *compressible*,

Elasticity lost in the large arterial trunks. Pulse *jerking*, *thrilling*, *vibrating*.

3. The character of the pulse may be modified very markedly, by the degree of contractility of the muscular fibres, which enter into the structure of the vascular coats. The normal functions of this tissue is to give the pulse the character of *tonicity*. It varies in degree from the tense state of high nervous excitement, or rude, robust health, down to the flabby condition of collapse, shock, or extreme debility.

4. Cases of extreme anæmia illustrate clearly the influence which the consistence of blood has upon the pulse. From the de-

ficiency of an important element of the blood, the pulse assumes the *thrilling* character which under other circumstances, would denote loss of elasticity in the great arteries.

5. The aortic valves, when in a state of structural integrity, contribute by their prompt closure, to keep the arterial system full, and thus conduce to the steady and uniform character of the pulse. But when they are insufficient, and permit regurgitation, each pulse is peculiarly distinct, the wave occasioned by the contraction of the ventricle being felt as if the blood were "shot under the finger," the vessel in the interval being unusually empty. This pulse is an exaggeration of the *jerking* pulse of anaemia.

These various characters rarely if ever occur singly, but are met with in various combinations. The attempt to so describe the peculiar combination of the characters which are distinctive of special diseased conditions has furnished us with a host of names of pulses, supposed to be important, but which, from neglect to first state accurately the sense in which the various terms were used, are now almost completely valueless. Thus, the quickness has not always been distinguished from the frequency of the pulse, nor the volume from the compressibility. Yet, by bearing in mind the sense of the terms as defined when describing the characters pertaining to the rapidity of the pulse, the time of each pulsation, the volume and compressibility of the vessel and the rhythmical succession and equality of the beats, it will be easy to recognize the combination of tactile sensations of which the names of the following varieties of the pulse are indicative. Take for instance:

1. *The frequent, large and soft pulse—the pulsus frequens, magnus et mollis.* This variety is one of the more common forms, and is very easy of recognition. As compared with the healthy pulse, it is compressible. It seems to be compounded of a frequent beat of the heart, a large quantity of blood sent out by each contraction, and an artery wanting in elasticity and tone. The pathological conditions with which it is found are the premonitory stages of many febrile and exanthematous diseases, such as scarlatina, measles, erysipelas, typhus and typhoid fever, and some forms of pneumonia.

2. *The frequent, large and hard pulse—the pulsus frequens, magnus et durus.* This pulse differs from the healthy standard in being more frequent, of larger volume and less compressible; while it can be distinguished from the pulse just described by its greater resistance to pressure. In the *frequent, large and soft pulse*, while

the rapidity and volume are greater than in health, the resistance is less; in the *frequent, large and hard pulse*, while the first two characters are the same, the last is much greater. The action of the heart is frequent, the volume of blood propelled into the arteries with each contraction, is large, and the blood vessels seem full of elasticity and tone. This pulse is often developed in robust, plethoric persons, by slight and evanescent causes. It is also seen in people who suffer from enlargement of the heart, with or without valvular lesions. In others again, it coexists with chronic albuminuria, and its presence should excite apprehension in regard to disease of the kidneys.

3. *The frequent, quick, large and hard pulse—pulsus frequens, celer, magnus et durus.* Here with a frequency, amptitude and resistance greater than in health we have a shortening of the duration of each impulse. This peculiar pulse is the result of a frequent and quick beat of the heart, a large circulation of blood and an artery full of elasticity and tone. It accompanies inflammatory fever. It was this form of pulse that used to be considered the warrant for bleeding; and with the general name, *pulsus frequens, celer, magnus et durus*, it was further described as "bounding" and and "incompressible" in character. It differs from the last example described in the shortened duration of each beat, the other characters remaining the same. It has many points in common with a form of pulse often spoken of in the older medical works—the wiry, or thready pulse—the best illustration of which attends the onset of the eruptive fevers. So long as the vigor continues we have the *pulsus frequens, celer, parvus et durus*—the frequent, quick, small and hard pulse—that is, the wiry, or thready pulse, which differs from the ordinary pulse of inflammatory fever in the single quality of amptitude. When reaction sets in, it changes from hard to soft, and undergoes an alteration in volume, with reference to which experience teaches that in proportion as the pulse becomes softer and more expansive the patient feels relieved and his condition is improved. The duration of the beats become normal, but the amptitude of the artery is larger than in health and its resistance to pressure is diminished. We then have the *pulsus frequens, magnus et mollis*, the frequent, large and soft pulse first described—the characteristic pulse of the premonitory stages of the eruptive disorders—in which a full wave of blood passes along the artery largely in length and breath, acquiring a greater

calibre than before, and becoming at the same time more or less twisted. The pulse described as characteristic of inflammatory fever, the *pulsus frequens, celer, magnus et durus*—the frequent, quick, large and hard pulse—differs from it in possessing the qualities of celerity and hardness.

4. *The frequent, quick and small pulse—the pulsus frequens, celer et parvus.* In this pulse, we have the effect of a frequent contraction of the heart, each being quickly accomplished and supplying the arterial system with but a comparatively small amount of blood. In males, it commonly denotes a pulmonary complication; in females, anæmia or hysteria. Again, this is the form of pulse excited by certain mental emotions—notably, apprehension and terror.

5. *The infrequent, large and hard pulse—pulsus rarus, magnus et durus.* This form of the pulse is due to an infrequent beat of the heart, a full supply of blood, and an artery in a state of tonicity and elasticity. The interval between each beat and its successors is unduly prolonged. This is the pulse characteristic of apoplexy, and coma, however induced. Compression of the brain, from hæmorrhagic extravasation, or profound narcosis, most commonly induce it.

6. *The infrequent, quick, small and soft pulse—pulsus rarus, celer, parous et mollis.* With an infrequent and quick contraction of the heart, it is possible that such a pulse as this might be produced. In certain hysterical women and tuberculous men in whom it has been noted, it is not improbable that such is the method of causation. It has been my fortune to meet three cases in which these peculiar characters were exceedingly well marked. The pulse ranged from 40 to 55 beats per minute, each beat was notably quick, the artery was but little expanded by the wave of blood, and possessed very slight powers of resistance. In all three cases, the patients were suffering from excruciating paroxysms of neuralgic pain; one, was a well-marked case of angina pectoris; in this second, the pain, originally post-sternal, spread to the neck and radiated down both arms; while in the third, the affection commenced as hemicrania, but in several attacks, implicated the neck and left arm. In the latter I would mention as a curious fact, that the left radial pulse, which presented nothing abnormal on other occasions, first became weak, and then finally disappeared, during the acme of an attack when the neck and left arm suffered from a radiation of the pain.

7. The changes which the pulse undergo during the progress of various diseases, a knowledge of which experience alone can teach, until some better method of registering the variations in the vascular system which physicians notice in their practice, has been devised, are very interesting, and extremely important not only for diagnosis, but also for prognosis. The difference in the character of the pulse during and after the rigor which attends the onset of the eruptive fevers—the close resemblance to, and yet clear distinction from the pulse of inflammatory fever which is presented by the pulse of the patient while suffering from the rigor—has already been alluded to. There is an affection, one of the most interesting the physician is called upon to treat, which deserves mention in this connection, from the fact that the illustrious observer who first described its peculiarities and obtained for it recognition as an independent disease, made the guide to its division into stages certain peculiar changes which the pulse of the patient undergoes. I refer to that fatal affection of childhood, tubercular meningitis. In 1768 Dr. Whytt, published a treatise which gave the first, full and complete history of that disease, then called acute hydrocephalus. Observing the remarkable manner in which the pulse varies, at different periods in the progress of a case, he divided the disorder into three stages, and in each of these he made the peculiar condition of the circulation the leading symptom. Thus in the first stage, in which there is great exaltation of the special and general sensibility, the characteristic symptom is frequency of the pulse; in the second stage, the sensibility is blended, the child lethargic and not easily aroused, and the pulse, infrequent; and in the third stage with paralysis or convulsions, there is a "very rapid and thready pulse."

In tubercular meningitis, the condition of the pulse, is even at the present day, the most valuable means of diagnosis the general practitioner can rely upon. The ophthalmoscope enables one familiar with the manipulation of that instrument to determine at once, in the vast majority of cases, the existence, or non-existence of the affection, but as there is no probability that those physicians who treat, and continue to treat 49 out of every 50 cases of this disease, will ever attempt to acquire the necessary skill to use this method of physical research understandingly, the value of the intra-ocular changes as an aid in diagnosis can be at once dismissed. The behavior of the pulse, in connection with such other symptoms as may present themselves, generally suffice to justify a diagnosis. The peculiarities of the pulse can be summarized as follows:

During the stage of exalted sensibility the pulse is frequent, quick and hard. The frequency is the most marked character during the early part of this stage. After the symptoms have persisted for a variable length of time, generally a number of days, and as the condition of excitement and sensorial exaltation passes, or is about to pass into a state of lethargy—the second stage, or the stage of diminished sensibility—the pulse, with generally, a short interval in which peculiar rhythmical changes, soon to be described, became manifest, loses its qualities of frequency and celerity, and becomes infrequent, large and hard—the combination of qualities characteristic of apoplexy and coma however induced. A phase of the pulse in this stage which is particularly worthy of remembrance, but one that I never remember to have seen stated, with a reference to the wide departure from the physiology of the pulse involved, is the fact that slight change of posture will so stimulate the frequency of this preternaturally slow pulse that it will become so rapid that it may be impossible to count the number of pulsations per minute. Yet, in health the effect of change of posture on the same frequency of the pulse is nearly twice as great in the male as in the female, and nearly three times as great in adults as in early youth. With the development of an increased rapidity of the pulse, is ushered in the third and last stage of the affection—that of paralysis and convulsions. The pulse becomes extremely frequent, small and soft, and these characters generally persist until death closes the scene.

9. *Irregularity of the Pulse.*—The rythmical regularity with which the revolutions of the heart succeed each other may be interrupted. Any change of this kind is attended by a corresponding interruption or variation in the order or frequency of the pulsations which can be noted in the radial or other superficial artery. An illustration of this form of rythmical disturbance occurs in tubercular meningitis. When the first stage is drawing to a close and generally before any lethargic symptoms have become manifest, the pulse, still frequent, quick and hard, may exhibit evidences of inequality—the volume of blood thrown into the arteries by each beat, not being always the same. Traces of irregularity can then be observed. With the development of inequality and

irregularity an interval sometimes of but a few hours, sometimes of a day or two intervenes between the subsidence of the pulse characteristic of the first, and the appearance of the pulse proper to the second stage. The pulse becomes unequal before it gives evidence of irregularity. The disparity between successive beats imparts a peculiar and very striking character to the pulse, and one which when recognized at this peculiar stage in the progress of the disorder, is very characteristic of the nature of the disease. In reference to the nature of the irregularity which can next be observed, Dr. John Cheyne, whose little essay on Hydrocephalus Acutus ranks among the best of the contributions to the literature of this disease, is the first author I can find who gives much attention to it. After referring to the facts cited by Whytt, that in passing from the first to the second stage the pulse becomes unequal and then irregular before diminishing in frequency, he goes on to say, in a foot note: "There is often this peculiarity in the pulse. It beats, perhaps, ten or twelve strokes at the rate of 60, and the next six or eight at the rate of 100." Dr. B. W. Richardson, one of the latest writers on Intermittency of the Pulse, describes two varieties of irregularity—an *acute* and a *prolonged irregularity.* In the *acute* form each stroke is given in correct order of succession the one stroke to the other, but in series of five, ten, or other number of beats, differing in rate from other series. In *prolonged* irregularity, during one minute may register 70 beats, and if counted through another minute, from 90 to 100. This form of irregularity he has met with most commonly in cases of acute cerebral disease, especially hydrocephalus in children. The significance of this rythmical interruption is very clear, and is the same, practically, in the two classes into which Dr. Richardson divides the cases which illustrate this symptom. In all but a few cases, the cerebral powers were oppressed and the spinal functions unduly exalted—a condition due either to primary or secondary congestive or inflammatory affections of the brain. In the few cases of an exceptional character, some were developed during the recovery of the heart from an endocardial complication occurring during the progress of articular rheumatism; others were seemingly the expression of an extreme form of general debility.

10. *Intermittent Pulse.*—This character of the pulse is generally included under the head of rhythmical derangements; although it is not so much a modification of the order in which the strokes are

repeated, as it is an absolute loss of one or more of them at regular intervals. The artery pulsates normally, until a definite number of beats are accomplished, then it remains quiescent for an interval generally corresponding in time to that usually occupied by a single cardiac contraction, and again resumes its activity at the rate habitual to the person under examination. On auscultation of the heart, the impulse and sounds recur regularly and naturally; there is no enlargement of the superficial or deep cardiac spaces, and no adventitious sounds are perceptible. Nothing abnormal can be detected until such time as an intermission is felt in the radial pulse. At that moment instead of the regular succession of the first and second sounds, succeeded by the interval of silence, there is an abeyance of the first sound, a very faint, or no second sound, a short period of rest and an unusually intense first sound, followed by two distinct second sounds, the last of which separated by no distinct interval from the first sound of the next cardiac revolution, which latter is succeeded by its second sound and interval of silence as in health. These cardiac intermissions occur with great regularity—the number of healthy beats between each intermission being at the same rate from day to day in the same person, although varying widely in number in different diseases. They are uninfluenced by ordinary excitement, and in this respect differ widely from the rapid contractions characteristic of palpitation, which may be induced by an examination of the chest even.

The manner in which the mechanism of the heart is deranged during an intermission, has not been fully elucidated, yet there are some points pertaining to it which are susceptible of demonstration. The systolic contraction so far as the left ventricle is concerned, does not take place, no blood is propelled into the aorta and as a consequence there is no pulse perceptible at the wrist. The ensuing systole is more energetic than usual, and the pulse following the intermission is therefore more forcible than those which succeed it. The weak, second sound perceptible during the intermission, the absence of the interval of silence following the onset of cardiac contraction, together with the duplication of the second sound then audible have been variously explained in accordance with the views of the different writers who have given attention to the subject. During the ordinary movements of the heart, the auricles and ventricles seem to act in a normal manner, and the first evidence of disturbed action is an abeyance of the systolic contraction of both auricles and ventricles—those of the left side are certainly quiescent. The occurrence of a weak sound over the base of the heart, more marked on the left than on the right side of the sternum, occurring without any audible first sound, or perceptible arterial pulse, represents an anomalous state of affairs, not easily explained. Theoretically it can be explained by a partial contraction of the right ventricle alone, the blood thrown into the pulmonary artery being small in quantity, the arterial recoil is proportionally weak and the sound due at the closure of the semi-lunar valves is consequently only moderately intense. Richardson is inclined to believe that no contraction occurs in any of the cardiac chambers, but that the blood flowing into the right auricle under the influence of the *vis a fronte* forces its way into the ventricle thence through the pulmonary artery, and that the weak second sound is due to the contraction of the walls of that vessel upon the incoming blood, forcing together the semi-lunar valves. He also suggests that the duplication of the second sound in the first cardiac beat succeeding the intermission is due to either a separate closure of the semi-lunar valves of the aorta and pulmonary artery, or to a simultaneous double but feeble closure of both.

For the purpose of arriving at the same definite idea of the mechanism of this duplicate of the second sound in the cardiac contractions succeeding the intermission, I made a number of observations some years since with the differential stethoscope. The chest pieces were placed in the second intercostal spaces, on each side near the sternum. In this manner certain differences are observable in health, between the sounds produced by the aortic or pulmonic valves respectively, which conjointly produce the second sound of the heart. The result in a number of cases of intermittent pulse, in which observations were made, was that the sound produced by the closure of the aortic valves was audible on the right side of the sternum, was normal in its relation to the first sound and the arterial pulse, and only different from its ordinary characters in being slightly more intense; while the pulmonary second sound, which in health is heard in the left second intercostal space at the same time, was delayed and did not occur until the aortic sound had subsided, and then took place what should have been the interval of silence. In subsequent contractions they occurred together, and nothing abnormal was detected until an intermission occurred, when a weak pulmonary second sound preceded by an unusually prolonged interval of silence was apparent, then a shorter period of rest, then an intense first sound, succeeded at once by a second sound from the aorta, and finally, a pulmonary second sound in what should have been the interval of silence.

From these observations I was led to believe that whatever may be the mechanism of the second sound, heard during the intermission, it is certainly produced at the pulmonic orifice, and however, the blood passes from the right side of the heart into the pulmonary artery, whether by the action of the capillaries, the respiratory movements, or a slight contraction of the right ventricle, this certainly is true, that the right cavities of the heart are greatly distended, and with the cardiac revolution succeeding the intermission they are not capable of employing themselves so speedily as those of the left side, and that the duplication of the second sound, then audible, is to be attributed to the consequent delay in the closure of the pulmonary valves, which instead of coming together at the same instant with those of the aorta, lay behind, and by their closure an instant later, obliterate the interval of silence.

Such, in brief, is the outline of the mechanism of this curious phenomenon in animal physiology. Its causation, is equally interesting. Careful observation of different patients, and the analysis of the symptoms and histories of a great number of cases, demonstrate that intermittency of the pulse is one of the not uncommon results of strong mental emotion. So firmly convinced was Richardson, of the fact, that he thought that the tissue changes which attend its progress, must be sought for in "some mental center" of the nervous system. But, without entering into questions which are foreign to the point of view from which it is desirable to consider those abnormal modifications of the pulse which are of special interest to the physician, intermittency of the pulse must always remain one of the most curious and interesting of the morbid phenomena which appeal directly to the senses of the observer.

In the foregoing, I have endeavored to review as briefly as possible, the physiological characters of the pulse, more especially the one most readily appreciated, the frequency of its beats. In bringing together in compact form, the various researches and experiments which demonstrate the manner in which the rapidity of the pulse is influenced by age, sex, posture etc. I have been guided by the fact that no similar body of information on this subject is accessible to those who might desire to avail themselves of it. The definitions given the terms which describe the different characters of the pulse are open to criticism, but I am at a loss to see how they could be improved. The number of varieties of the pulse analyzed has not been large and by no means exhaust the subject, yet they will suffice to illustrate the application to any pulse, of those principles of physiological analysis which alone can remedy the confusion in nomenclature from which this subject suffices. I trust that ere long, the too much neglected subject of "pulse divination" will again resume its place in the circle of clinical studies, and should the many who have worked fruitlessly with the sphygmograph, direct their efforts towards the elucidation of the mysteries of this oldest method of medical observation, who can doubt that such labor will yield returns which will not only add to the acquisitions of the observers, but will afford a plentiful harvest of valuable facts that will be thankfully acknowledged by the whole body of the medical profession.

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Art. 5.—Quinine as an Oxytocic.

By B. S. WOODWORTH, M. D., Fort Wayne, Indiana.

The following case is cited as an example of the effect of Quinine, as an excitor of uterine action:

I was called in consultation with Dr. Sweringen to see Mrs. Whitmore, a woman æt. about forty-one; the mother of eight living children. She has had also, three miscarriages. She lives in a malarious district, on the banks of the St. Mary's river, and has suffered from malarial fever, more or less for several years. She was pregnant with her ninth child; a little over seven months gone. She was anasarcous generally, to such an extent that breathing was difficult, and her legs were bursting with their œdematous condition. Decubitus dorsal; (was unable to lie in any position, except on her back); was anemic; urine was albuminous, and spleen greatly enlarged.

The case might be called puerperal anemia. Possibly there was leucocythemia, 'though the blood was not examined. The important question was: Ought premature labor to be induced? and if so, by what means. My opinion was that such a result was desirable, and in order to accomplish such a result, thought it was best to try the effect of quinine; accordingly a prescription was made of quinine and reduced iron each five grs., to be taken every four hours for forty-eight hours, and if that failed to accomplish the premature labor, to take it in larger doses. After taking the quinine and iron for two days, a twenty gr. dose of quinine was taken, and in six hours it was repeated, and in two hours after the second dose labor pains came on and the child was born, which lived about twelve hours. It was apparently about a seven and a half months fetus.

The patient is now nearly recovered, under the use of moderate doses of quinine and iron, for the enlarged spleen and anemia. This case is a type of many that we see in this climate, and while I do not think that quinine in small doses will generally induce abortion, or miscarriage, I think that in large doses it frequently, if not generally will. I think also, that the induction of premaature labor is justifiable in such cases, to avoid uremic convulsions and frequently death.

Art. 6. Case of Poisoning by Hydrate of Chloral.

Read before the Cincinnati Medical Society.

By N. P. DANDRIDGE, M. D., Cincinnati, O.

There have appeared from time to time in the various journals reports of fatal poisoning from chloral hydrate. The case I am about to narrate is so far as I know the first of the kind which has occurred in this vicinity, and as the drug is very largely used, presents, I think, points of sufficient practical interest to occupy the attention of the Society for a short time.

On the night of Sept. 18th, 1875, I was called to a hotel, and arriving there I was told a man had taken an over-dose of chloral, had fallen asleep and could not be aroused. I found the man comatose, the face and forehead intensely flushed; the pupils greatly contracted and insensible to light, and respiration increased in frequency. The pulse at the wrist was not perceptible. The thermometer in the axilla showed the temperature to be normal,—the temperature of the extremities seemed likewise normal. No exertion could arouse him. On the table I was shown by a friend, who had been with him a two ounce bottle marked chloral hydrate 160 grs. This bottle was empty.

This same friend gave me the following history of the case: The patient was a commercial traveler, about forty years old; he had been in the city a day or two on business. They had been together part of the day engaged in business transactions and had during that time drank several times. In the afternoon they parted, the patient going to consult an oculist about his eyes. On meeting his friend again in the evening he told him that the doctor had said that it would be necessary for him to change his habits in regard to drinking, and probably also his occupation before he could expect any permanent improvement. He seemed much depressed, and remarked that he would "rather be dead than blind." During the evening the patient drank several times and became somewhat intoxicated,—a fact which was remarked by a druggist to whom he applied later to have a prescription filled. On presenting the prescription, which was one he carried with him, and which was returned to him, he asked to have the amount called for doubled.

This prescription I was now shown, it called for:

℞	Chloral hydrate,	160 grs.
	Aquæ,	℥ii.

M. Dose, a teaspoonful.

Thus making the dose only grs. x. The prescription was written on paper from a druggist in Pittsburg,—in addition it had been stamped by a druggist in Columbus and also by one in St. Louis—this last was dated in May. From this it at once became apparent that the prescription was an old companion, and that he had had it filled in various parts of the country, and that the habit of taking chloral was an old and probably a frequent one. After leaving the drug-store, the two returned to the hotel to finish their business. The patient complained of not feeling well, and finally induced his friend to remain all night. The friend at half after eleven went down stairs to leave word to be wakened in the morning, and left the patient sitting on the bed-side with the bottle of medicine untouched in his hand, he said he would not take any until his friend returned as it would put him to sleep.

The friend returned in five minutes and found the patient lying on the bed, he looked at him and said: "I am glad you are back" and at once became unconscious and it was found impossible to arouse him. The chloral bottle was empty and there was no evidence that any had been spilt.

I arrived at 12:20 A. M., just fifty minutes after the chloral had been taken, and found the patient in the condition above described. After learning the above facts I went to the drug-store to learn if the chloral had been doubled or not, and also to obtain a Davidson syringe for the purpose of administering stimulants by the rectum. The drug-store was shut and I could not gain admissson, so I was obliged to go to my office for the syringe. I was not gone more than ten minutes and on my return I found as I thought matters looking somewhat better with my patient.

The breathing was twenty-five to the minute and more natural, the pulse was quite perceptible, though weak, and 120 to the minute. The touch did not indicate any lowering of temperature, and the flush about the face and forehead was decidedly decreased.

Altogether the condition of my patient seemed to have so improved that I began to hope that the most profound impression of the drug had been produced, so I determined at present not to interfere in any way, but for a time to watch the course of events. His condition remained absolutely unchanged for nearly an hour, when suddenly my attention was attracted by two or three irregular breaths and examining his heart I found it had stopped beating. An attempt at artificial respiration was made without avail.

From friends since I learn that the man had always borne the reputation of a steady and excellent business man, and they were surprised to find that he had been an habitual drinker for years. To epitomize the foregoing we have here the history of a man, of middle age, an habitual drinker (though not to such excess as to incapacitate him for business), and who had been in the habit of taking chloral for at least some months past,—commencing probably with ten grains as a dose—though how much this was subsequently increased, and how often repeated was not known. This man was poisoned and died in about two hours and a half after taking 160 grains of chloral. I forgot to state previously that at the coroner's inquest, the druggist testified that he had only put 160 grains in the bottle, and had not doubled the strength, as requested by the deceased.

The impression at first after the introduction of chloral seems to have been quite general, that it was a comparatively harmless agent, and it was given freely in very large doses. Not only has experience contracted very greatly its range of application, but has shown that it was not the harmless drug at first supposed, and the tendency seems to be to give it in constantly decreasing quantities.

I do not propose to enter now into a discussion of the physiological action of chloral, except incidentally, or to attempt to discriminate as to its proper therapeutic range, but shall confine myself to the consideration of three questions which seem to me of prominent and practical importance, in reflecting over the case I have just narrated, and this I do in the hope of obtaining the views of the different members in regard to proper means to avoid a fatal termination under similar circumstances. The questions I desire to consider are:

1st. The symptoms of chloral poisoning.

2nd. The average dose which is followed by a fatal or dangerous poisoning.

3rd. The best means of combatting dangerous symptoms and preventing a fatal termination in cases where an overdose of chloral has been administered.

In regard to the symptoms of chloral poisoning, Dr. E. Heckel in a brochure published in Brussels, 1874, says: "We distinguish an acute and chronic chloralism. The first may be slight, grave or even fatal. In the slight form there may be vomiting, especially when standing, vertigo, hebitude, and loss of strength, and at the same time various eruptions, erythema, scarlatinal rash and inflammations of the mucous membranes, and all the phenomena of paralysis of the great sympathetic, with purpura, urticaria, etc.

In the grave form there is seen pallor, troubles of sight, cold sweats, weakness and depression of pulse, stupor, coma, mydriasis, tetaniform convulsions, and death.

This fatal termination is accounted for by all observers (Jolington, Webb, Waters), to be a depression or paralysis of the heart, as was indicated in advance, would be the case, by the physiological action which had been established by the experiments of which we have above spoken of.

Smith in the "Commentary on the British Pharmacopia," after quoting the above without however giving credit to its author, says: "Sleep produced by chloral is occasionally dreamy and disturbed and in a few cases, patients after a dose of 40 or 50 grs. have been thrown into a state of extreme prostration with gasping respiration, weak, intermittent pulse, extreme flushing of face and temporary loss of power over limbs, exceptionally an urticarious, or papular, or scarlatiniform eruption appears."

Ringer reports from Levenstein, the case of a man 35 years old, who took 6 drachms of chloral. When first seen he lay in a profound sleep, with congested face, heavy breathing, and a pulse 100 An hour after the poisoning he became livid the veins were distended, the respirations were intermittent, and his temperature 103°. An hour and a half after the dose he became pale, pulseless, with contracted pupils and his temperature had fallen to 91.2. Nitrate of strychnia enough to produce twitching of the muscles was then injected hypodermically and the heart at once began to beat again,—the temperature showed 91.9°. Collapse however returned again in a few minutes; the circulation appearing to stop, artificial respiration was performed, and strychnia again injected with the same result as the first injection. In ten hours the pupils acted to light, in twelve the temperature was 100.4, in twenty-two hours he could be roused, and after thirty-two hours he awoke quite refreshed." There are several points in this case worthy of notice,— the amount of chloral taken and recovery taking place. The effect of strychnia in combatting the most alarming symptoms, a fatal termination apparently being averted by this drug, and finally the temperature range, - one hour after the dose it was 103.° and then in 30 minutes it fell to 91.2. Dr. Laudor Brunton says: "the temperature always falls after large doses," and most experimentors on animals agree with him on this point. The above case shows that the fall of temperature may be preceded by a very decided elevation. In my own case the temperature one hour after the dose was taken was normal; possibly the thermometer might have indicated a subsequent fall had it been used, but this was not perceptible to the hand.

If now we pass to the form of chronic poisoning we meet a most unexpected variety and gravity of symptoms. Heckel in the brochure above quoted, says: "Chronic chloralism has been seen especially by Smith, of Baltimore who has observed in four cases symptoms similar to those of ergotism and consisting of hyperæthesis, general malaise, desquamation of the epidermis of the fingers, superficial ulceration around the nails, anasarca, albumenous urine, weakening of the heart and embarrassment of respiration. Twice in four cases these symptoms were followed by death."

In Anstie's journal, "The Practitioner," will be found the translation of an article by Ludwig Kirn, on the subject of chronic chloralism, the author here speaks of its uncertainty as a constant hypnotic,—its tendency to produce fluxionary hyperæmias with increased and strengthened heart's action. This is first manifested in the head, and is always made more prominent by the use of stimulants. In addition there may be produced redness and swelling of the various mucous membranes, of the conjunctiva, epiglottis and vocal cords, swelling of glands, decreased sensibility of skin followed by red spots, vesicles and even sloughing. "More or less dyspnœa. This may be explained anatomically by the analogy of the effect of chloral on the skin and mucous membranes, by hyperæmia of the lungs which is produced through the channel of vaso motor nerves. Here is a practical confirmation that chloral acts on the vaso motor centres and the medulla, and that its paralyzing influence extends to the peripheral branches of the affected nerve." And finally he speaks of "evidence of more or less profound blood changes," and this he exemplifies by a case which he thus sums up. If we sum up the weightier symptoms of the case we find a strong, young, previously healthy person suffering from acute uncomplicated mania, in whom on the ninth day of treatment with chloral, a rash appeared in the form of red spots, which became confluent. On the 20th day the temperature and pulse rose rapidly to a febrile pitch, three days later the temperature had reached 106.7. Large and repeated doses of quinine were given without result, and baths had only a temporary affect. Œdematous swelling of the face eyelids and ears now set in. During the whole course of the disease, the skin so far from returning to its natural appearance, was the seat now of impetiginous eruptions, now of moist, now of sealy eczema and ichthyosis so that a process of desquamation instead of being short as in the acute exanthemata, occupied many weeks, during which great sheaths of epidermis were cast off from all parts of the body. The profound lesions of the skin nutrition were evidenced in the later stages by a remarkable shedding of the hair, and a gradual falling of all the nails of the hands and feet. The affection of the skin was accompanied by a similar one of the mucous membranes, first of the intestines, which kept up a constant watery discharge in spite of medicines, and a similar affections of the conjunctiva and the bronchi.

From the sixth week of the disease onwards a series of large abscesses formed on both arms over the shoulders and arm pits which secreted a considerable quantity of pus. Whilst these phenomena were occurring, there had been for six weeks a continuous fever, occasionally remitting, and then again running up to a temperature beyond 104°. For these symptoms there was no other external cause except the administrations of chloral, this medicine was given for ten weeks in nightly doses of 45, 60, or even 75 grs., sometimes in two doses daily.

Although the subject of chronic chloral poisoning only indirectly affects my case, the subject is of sufficient importance, from the wide spread habit of resorting continually to the use of the drug as an hypnotic, that I have felt fully justified in thus occupying your time with such lengthened extracts.*

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* The paper was not completed at the time of being read.

Art. 7.—The Practice of Medicine by the Celestials.

BY REV. J. FISHER CROSSETTE, Tsining Cho, North China.

Let me put on paper for the entertainment of my friends in America, the story which I have just listened to, as to the origin of the "God of medicine," worshipped by about a third of the human race. The narrator was a Mohammedan, an officer in the Chinese army; the place, the interior of China in the Southwestern corner of Shantung Province; the audience, a former resident of Cincinnati, and as the language was not English, I must translate and abridge:

About a thousand years ago, (1200), a man named Sun, who was wonderfully skilled in the curing art, went about healing everybody in a remarkable manner. Among other wonders, a tiger, who knew of his fame, met him one day and nodded his head to him, as much as to say, I am in distress and need assistance. Mr. Sun soon found the seat of difficulty to be in the tiger's throat, where by thrusting down his hand he found and pulled out a long gold hair-pin. The tiger relieved fully of his trouble nodded his head in thanks and went off. The wonderful doctor met a man who had a great tumor on his shoulder, and treated him in such a manner as to cure him speedily. But, says the doctor, who was destined to become the "God of medicine": I know my patient is not a man as he appears, but is no less than the "Dragon."

Now, in China the "Dragon" rains, blows, and hails, having exclusive charge of the elements of the air. For some time after, wherever the doctor made his appearance, a thick mist and rain prevented his practicing his art, and he was likely to starve, when in his extremity he bethought him of the gold hair-pin, and took it to a goldsmith to sell. The clerk weighed it, and went in to get the money for its value, when the proprietor came out and examined the pin, found by its marks that it was a costly one which he had made for a daughter of his who had disappeared some time before. Poor Dr. Sun was now in trouble indeed. His story about the tiger, which he told in his defense when tried for murder, was not believed, and he could not summon the only witness, so the Court ordered the bastinado 'til confession should be made. Just then the dragon came to time with his thanks and sent a whirlwind which blew the court house to pieces and released Dr. Sun from his peril. For these and a thousand and one such exploits an Emperor of the Táng Dynasty made him a God, and to this day he is worshipped and vowed to as the great help of the sick.

The "Dragon and the Tiger" are the "Lion and the Unicorn" of the Chinese. The right and left wings of their houses are respectively called the white tiger and green dragon, and their emblems are interwoven into nearly everything.

Druggists all keep medicines which are said to be made of dragon's teeth and bones and tiger's knees and stomach. So of course if the God of medicine, before he was deified, was able to cure such powerful creatures as the dragon and tiger, to a heathen mind, he earned his honors. I am told that one of the popular plays of China acted on all their stages represents the above scenes in the life of the "God of medicine."

Inside of the South gate of this city, is an old Hwei tree (Sophora) which the people say is over a thousand years old, and as I have seen them in China which are said to be over two thousand years old, I do not discredit the statement of the age of this one. One great branch crosses the street not far above the heads of the multitude which pass up and down, interfering with the transportation of anything very high; but no matter for that, the reverence and patience of the Chinese put up with it, as we would not. Even the roofs of houses are made to fit around the limbs which extend over them, rather than to do such a sacriligious thing as to lop off a limb. When I first saw the tree, and every day as I pass I am struck with the placards, memorial tablets, silk flags, etc., fastened to it. I asked what it meant, and the reply was: "This is his honor the Hwei tree," and these memorials are the votive offerings of people who have prayed to him for medicine. My Mohammedan friend has just told me this story about it.

Several years ago it died, (at least, so people say), and remained lifeless and leafless a number of years. At last, its soul took a man's form and went to Nanking, three hundred or more miles south of here, and bought several car-loads of silk and satin, for which it paid and left directions to have sent by the Grand Canal to this city and delivered to Mr. Hwei, inside of the south gate on the east side of the great street at the house of a Mr. Lee. In time the goods were left at the residence of Mr. Lee, in the walls of whose house the tree is bricked in. Wonderful to relate, the tree before long put forth leaves again, and the mystery was explained. Mr. Hwei was no other than the tree of that name who resolved to give himself a birthday present and so bought the silk and satin with directions to leave at Mr. Lee's tenant, Mr. Hwei.

Since then, (which has not been more than five years), the tree is called the Honorable Mr. Hwei, and the confidence in his wonder-working power has caused his fame for curing disease to spread like wild-fire. I saw a sensible looking, well dressed young man on the day of the last new moon knocking his head to *his reverence* while he placed a great handful of burning incense sticks at its foot.

As most people recover after their diseases have run their length, it follows that the vows to this celebrated tree are generally followed by recovery, and of course the glory due to God, as in heathen countries and by some Christian lands, is robbed from Him and given to their imagination's work.

The apothecaries are nevertheless numerous in this city, although the god of medicine, the Hwei tree and other divinities receive so much honor. Quacks abound, and their pills and nostrums are placarded all over the city.

May I suggest to any of you interested in the materia medica of China, to address a letter to either of the following gentlemen, who are medical missionaries at the head of Asylums and Dispensaries, asking for the annual reports of their hospitals:

Dr. John Dudgeon, Pekin, North China. Postage five cents.

Dr. Fleming Carow, Canton, South China. Postage ten cents.

Dr. D. W. Osgood, Foochow, South China. Postage ten cents.

For any information from me, address Chefoo, North China. Postage five cents.

Art. 8.—Opium Smoking in China[*].

By Dr. Armand, Ex-Surgeon in chief to the French Military Hospitals in Cochin-China. Member of the Academy of Sciences.
Member of the Anthropological Society of Paris.
Officer of the Legion of Honor, etc.

[Translated by Thomas C. Minor, M. D., Cincinnati, O].

There is in the Chinese habit of opium smoking not only an interesting study of popular custom and political economy but also of public hygiene; this has led me to examine the subject with care. An observer of the habit in the country where it is most common, and having collected and collated the literature, I can speak with authority. In the meantime, I may say, by way of prelude, that most writers on the topic have failed to be accurate.

To the point, let us suppose that the embassadors from Japan, who recently left France, should say on returning to their countrymen: "The Europeans especially, have a wide-spread and pernicious habit, they generally drink wine and other fermented liquors, such as brandy, whisky, absinth and kirschwasser; rendered furious by the use of such drugs, they lose their reason and, sooner or later relapse into a condition of physical and moral degradation, characterized by stupidity and brutality, called in the language of that civilized people, alcoholic intoxication and *delirium tremens*. Their children are only little monstrosities, brutalized in advance by this hereditary vice; the entire population is degraded, deteriorated and decrepit, tending to a general degeneration, and even to a complete destruction of the species; leading us to think that the population of Europe will soon disappear from the face of the earth."

In reading this account taken from the *Gazette*, of Pekin, you would smile in pity at the ignorance of those superficial observers, who, in fact, deal in generalities and give the exception for the rule. This is the pit into which the majority of travelers in China have fallen, when speaking of the use of opium.

Everybody, it may be said, smokes tobacco in China, men, women,

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This article is extracted from Dr. Armand's celebrated work "Traite de Climatologie Generale du Globe." Paris, 1873.

and even many children: such has been the custom for a long time, for it is more than a thousand years since its use was first described in a special Chinese treatise,* but as to opium, it is only a very small number who use it, making a mean fraction of the Celestial empire, which amounts to more than 400 millions of people, and furnishes, according to the closest calculation, five millions of opium smokers. There is then, one smoker to one hundred persons in China. We will prove further on, by statistics, the truth of this assertion. There is then no reason to cry out about the general depravity, if this depravity is to be attributed to opium smoking. On the other hand, it is wrong to say that opium smoking is brutalizing; excessive smokers abusing the use of the drug, for the purpose of intoxication or narcotism, form relatively only a small exception. Sir Pottinger, Governor General and Minister Plenipotentiary of her Britannic Majesty in China, wrote regarding this point: "I cannot admit, in any manner, the opinion accepted by a great number of persons that the introduction of opium is, to China, either a source of ruin or a cause of misery. I have not been able to see a single one of the injurious effects spoken of, although I recognize the fact that when its abuse is excessive, it may be extremely hurtful. The same observation is equally applicable to all enjoyments carried to excess; but after what I have seen since my arrival in China, and after investigations made on all these points, even after hearing from the high Mandarin's themselves, I am convinced that the demoralization and ruin, that some persons attribute to opium, is probably owing to imperfect information, very much exaggerated, and that it does not equal in the hundredth part the sad and deplorable consequences that we see daily arising from the excessive use of spirits and other stimulants, largely and constantly consumed in England and India."

Don Sinibaldo de Mar, Minister Plenipotentiary of the Queen of Spain to China, says regarding this subject: "In India, in the Island of Malacca, in Java, at the Phillipines, at Borneo, and at Soulon, the Chinese smoke opium freely, buying it at the best markets of Canton, or at Shanghai, not to speak of the villages situated in the interior of the Empire and far from the coast. It is known nevertheless, that in all these countries, notwithstanding the rigor of the climate which is very hot, that the Chinese are remarkably healthy and robust, and that these are those who, as farmers, mechanics, porters, etc., perform the most arduous labor. In the Chinese colonies, the mortality does not exceed the ordinary figure, and I must affirm, that having known a great number of immigrants in the different localities enumerated, I have never heard of any of them dying, or being seriously sick from the use of opium. It was only on arriving in China, that I learned the injurious effects of this narcotic and heard that the vapor aspired by those smoking opium was poisonous. I may add that in none of the Chinese provinces I visited, did I hear of a death positively produced by opium, and having asked many persons, worthy of belief, if it was true that this habit caused death, they answered that it might happen, that is, to an habitual smoker, if he should be deprived of his opium, death following this privation."

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* See the work of Sinibaldo de Mar, China. Paris, 1858.

This last of Mr. De Mar's assertions is only what would be said in speaking of a great smoker, that he would die if he had not tobacco. We know what will occur following such a privation, as the following example will show. One of the greatest smokers I have ever known was Mr. B., an officer of the 31st Regiment, stationed in Africa. This gentleman smoked day and night, less two or three hours of sleep that he took in the twenty-four. On leaving for the Algerian expedition in 1847, he was plentifully supplied with tobacco, the supply was exhausted however before our return. For some days, Mr. B., very cross from having no tobacco, mixed the leaves of dried herbs and gazelles dung which, in smoking, appeased his longings and satisfied his taste. At the end of a fortnight, Mr. B. slept well, stood on his feet firmly, had a clear eye, and eat with an appetite to which he had been for a long time a stranger. "Good-boy!" I said, striking him on the shoulder, one day while at dinner, "you are not dead yet?" "Dead! I never was as well," he replied. "But you said you would die without tobacco," I remarked. "O don't speak of it again; my lips burned with *desire*, but it has all passed away" said he.

There is no more danger of death in quitting opium smoking.

Mr. DeMar, adds that Chinese opium smokers have a passion for the drug owing to the force of habit, and that it costs them a supreme effort to quit its use, although they recognize the fact that it would be advantageous to do so. When they smoke in moderation no inconvenience results; but if they carry it to excess, they lose appetite, the skin becomes faded and some persons grow so thin that they resemble walking skeletons. "I had in my house," says Mr. DeMar: "for three years, an individual who, in this respect, was remarkable. He was a tutor from Pekin and taught Chinese to two young Spaniards in my employ. Every leisure moment he had was employed in smoking opium, yet with all that, I do not remember of his remaining in his room a single day on account of indisposition. He was the calmest man in the house; he passed hours at the time with his pipe. I have had in my house other smokers, and not only have I allowed them to use opium freely, but I have also resorted to the ruse of coaxing them to use it in excess; and soon after conversing with them on serious subjects found that they were as bright mentally as before smoking."

It ordinarily happens that the most injurious effect of immoderate opium smoking, is the loss of the habit and taste for work, a result to which the horizontal position assumed by opium smokers largely contributes. We see these inveterate smokers neglect their business and go to ruin; and, it is certain that the families of victims to this vice curse opium and the foreigners who sell it to China.

The Chinese Government complains of the opium trade, and tries to prohibit it because they see the precious metals leaving the country. At one time the Government received considerable sums from this traffic; but the balance of trade was afterwards reversed from the time the importation of opium acquired importance.

Opium is produced from the thickened juice of the poppy, notably the *papaver somniferum*; the drug is derived from a number of sources; it is gathered in Syria, Turkey, Egypt and Persia. Smyrna opium is most esteemed. Algeria has commenced to produce an excellent quality. Persia opium is most often imported by England. English India produces immense quantities of the drug, almost the whole of which is absorbed by China and Japan. Opium is divided into three different grades, i. e.: Malna, Patna, and Benares. The first is often called Bombay opium, and the two others are often confounded under the common denomination of Bengal opium.

The consumption of opium in Europe, owing to its medical use is nothing compared to what is taken in the Orient, and principally in China where opium has become even more than coffee and tobacco with us, an object of the first necessity, as much for eating as for smoking.

Manner of Smoking Opium.—And now, what is it to smoke opium? It is in vain to seek a clear and precise answer to this question in any of the writings that speak of opium smoking. The too vague remarks made regarding this subject, would not permit a person to even guess how the drug is taken. There is not only a point of curiosity to satisfy, but also an indispensable explanation, for whoever wishes to give a physiological account of the influence of the habit, and especially for those who wish to speak and write of it intelligently.

The shaft of an opium pipe resembles a flute, having a lateral opening, mouthpiece. The tube is closed at one end, near which a lateral orifice is pierced to which is fitted a cup; inhalation takes place through the opposite end of the tube, which has a central orifice not more than two millimetres in diameter. As to the opium pipe, properly speaking, it does not in the least resemble a tobacco pipe; it is a small cup-shaped affair, having a very narrow orifice in the centre of a slightly convex surface. This orifice, is not more than one millimetre in diameter, is surrounded by a slight depression, forming an *infundibulum* of from three to four millimetres in diameter. The painted earthen or metallic pipe, is seven centimetres in diameter and in depth; it is hollowed out in the interior, and ends in a metallic neck one centimeter in diameter. It is this neck or collar that is screwed into the lateral opening of the shaft.

In order to fill the pipe, from one to two grains (from 5 centigrammes to one decigramme) of the extract of opium, are picked up by means of a small steel needle, nine to ten centimetres in length, which has a small spoon at one end, and a small tapering point at tne other. This quantity of opium is then placed in the end of the pipe, in such a way as to have the small orifice free, without which aspiration would not be possible. For this purpose we turn the needle and plunge its point into the central orifice, in order to be certain that the air shall have free passage. This done, neither the flint, as at Strasbourg, nor the coal embers, as in Flanders, nor tinder nor matches will permit you to light your pipe; it is necessary to have a small lamp which burns permanently upon your table, or rather upon a camp bed covered with cloth, if you wish to light up in true Chinese fashion.

Your pipe being charged, as before said, it is placed in the lamp flame, and you inhale its vapor, *par retraite*, so to speak, for your aspiration sends from wihout to within a current of air, and afterwards a jet of flame upon the opium which burns and is evaporated while the smoke penetrates the interior of the pipe. The opium thus burned, has the appearance of a grain of boiled sugar upon a fire shovel. This burning makes the opium spread and swell up and tends to obstruct the opening in the pipe; owing to this fact it is necessary to use the needle after each aspiration.

Where does the smoke of the opium thus aspired go to? If a buccal aspiration is made, as in smoking tobacco, the flame of the lamp is too fully drawn to burn much opium, and it only burns the surface of the pipe; it is also difficult to even draw a little smoke into the mouth. The true method of good smokers, those used to the habit, is to make aspiration, not simply buccal, but pulmonary: in other words, strong *inspiration* so prolonged as to fill the bronchi with the smoke-charged opium air. The inspiration made, the pipe is removed and the lips closed; expiration should be slow, the smoke being discharged through the open nostrils. When this is done, an almost imperceptible coughing movement occurs, and the smoke not discharged spontaneously by simple expiration, is ejected.

When the watery extract of opium that we wish to smoke is too liquid we give it consistency, and reduce it to a pulpy condition, by placing it upon the spoon of the needle and exposing it to the lamp flame; on contact with the flame, the opium swells up and dries, but this operation must not be pushed too far, for the reason that the opium loses its adherent property and does not stick to the pipe, an indispensable condition, for in order to be smoked it must be placed vertically to the flame with its convex surface exposed, or to speak in plainer terms, its surface must be placed parallel to the flame. This obliges us to hold the convex part of the pipe in close contact with its central portion inclined, so as to see it obliquely, which prevents fatiguing the sight and adds to the intensity of the flame making it much brighter when aspiration is carried on actively. It is noticeable that the flame is not very dazzling, when the smoking is interrupted, should this interruption occur the central orifice of the pipe should be examined and the obstruction removed with the point of the needle.

To smoke a single pipe of opium, a candle flame is sufficient, but if one wishes to smoke for several hours, the ordinary custom of a Chinese smoker, it is necessary to have a low flame, so that one may smoke leaning on the elbows or lying upon the side; as a lamp burns for a long time it is most convenient. At Singapore particularly, the smokers lamps are supplied with coco oil which gives off very little smoke. An alcohol lamp burns too quickly, and among Europeans it would be injurious, even dangerous, to aspire opium smoke from gas jets.

Why is the central orifice of the pipe so narrow as to be almost imperceptible? It is evidently for the reason that aspiration may be more prolonged, and the opening being very narrow prevents the flame from extending too far into the passage, the jet becoming so small as not to injure by its heat the air passages of the smoker.

For the purpose of cooling the smoke, the pipe is hollowed internally, the shaft being quite large, having a length of from 40 to 50 centimetres.

Now that we have given the various details in regard to opium smoking, let us dwell briefly on the quantity smoked, for the purpose of estimating its individual and daily consumption; in order to do this we must know the quantity of opium imported into to China, and also ascertain the number of smokers.

The quantity of opium taken to charge a pipe, as before stated, is from 1 to 2 grains at most of the semi-fluid, aqueous extract. To place this extract into the small receiving cup, we roll it upon the spoon of the needle used for the purpose, then place it, either directly, or after heating it around the central orifice of the pipe. In doing this, preparatory to exposing the pipe to the lamp flames, a smoker uses method, and performs the preliminaries with much care. They have for him an altogether particular charm, and it is very seldom that he fails to employ less than five minutes at the task.

1st. Then, five minutes time is necessary to charge an opium pipe.

2nd. Five minutes more are consumed in making a few aspirations, as after each aspiration, the smoker rests momentarily, enjoying the inhaled smoke in his lungs, then allowing it to pass off slowly through the nostrils, the residue being expelled from the mouth by a final expiratory effort. Between the first and second period, the expert smoker pauses a little and inhales the free air, his pipe cooling in the meantime, for opium burns, as we have said, only after continuous contact with a flame lighted up by strong aspiratory movement.

Thus we can put as much of an interval as we please between each aspiration, and can use the time profitably by passing the point of the needle into the orifice of the pipe, for the purpose of assuring ourselves that it is not obstructed by the swelling of the opium already burnt. The amount of opium in the pipe permits from 12 to 15 aspirations, thus sometime may be occupied in smoking. If the smoking is rapid the pipe generally lasts for at least ten minutes. All included then, ten minutes are necessary for each pipe smoked, preliminaries included. I have myself used the means above described, conforming in every particular to the Chinese method of opium smoking, and weighing the quantity in an accurate pair of scales.

A great smoker who loses no time at other things, such as dice playing, cards or chess, the smoker who hastens the operation by taking some mouthfuls of tea, will not smoke more than six pipes in an hour, perhaps 12 grains or 6 decigrammes of opium. The majority of men of the world, for there are officials, and men of letters who smoke opium, are content with a few pipes in idle hours or in the intervals of their occupations, as we smoke a cigar, thus there are a great number of people who are satisfied with five or six pipes, taken at intervals representing an hour a day employed in this manner. But from this moderate limit to the extreme limit there is a difference, as among us between sober men and men who pass all their time in drinking-houses, that is to say, entering at 10 or 11 o'clock in the morning, and remaining there, except at dinner time, up to midnight.

Passionate smokers, who do not smoke opium for simple distraction, but from sheer love of the drug, go to the smoking dens in order to smoke up to the point of drunkenness, sleep or torpor; many of these will slumber for twelve hours. Taking for the maximum 8 or ten hours of smoking, would represent about 60 pipes, or a consumption of 120 grains, or 6 grammes a day. Now as it is necessary to take an average between those who smoke least and those who smoke most, we think we are right in estimating the average time of smoking at five hours, or 30 pipes, thus consuming 60 grains, or 3 grammes of opium. If each smoker consumes on an average 3 grammes of opium a day, his annual consumption would be 1095 grammes, or in round numbers, 1 kilogramme a year.

Doctor Hobson has adopted an average of 6 grammes a day; this average seems too high, and besides, the smoker does not carry the habit to its extreme limit every day; there are times when the amount of drug is reduced and the habit even stopped; for the smoker may be indisposed, even sick—and especially without money—opium is very dear, and is an object of great luxury; it cannot be smoked sometimes even when wished; for, even as in France many men have not the cash sufficient to buy *Regalias*, *Manillas* or *Caporal*, so in China the supply of opium is often cut off, owing to want of money. We find the average estimate a little less than a gramme, according to the authorities in the "Chinese Review, 1837." Nevertheless, we believe we are right in adopting according to the experimental method followed, an average of 3 grammes a day, or, as before stated, 1 kilogramme a year. The importation into China from British India, which was increased in 1854 to 97,000 cases, is now estimated at 75,000 cases. Each of these cases weigh 60 kilogrammes. There is then a little more than four millions of kilogrammes of opium imported into China to be consumed by four millions of smokers.

This is the estimate made from personal calculation, based upon the method followed in smoking the drug and the computation of time passed by those following the habit. It differs one fourth from the estimate adopted by DeMar, who estimates the number of opium smokers in China at 3 millions.

However this may be, we admit that there are from 3 to 4 millions of smokers among 400 millions of people; this is scarcely in proportion of one per cent. We say scarcely, for this calculation of 1 to 100 is too high, for the Chinese Census of 1852 showed a population of 537 millions.

It is true that in the sea-shore cities open to European traders, as Shanghai, Canton, Tien-Tsin, where the opium trade is carried on, the population of smokers is greater, but it is much less in the interior, where the importation of opium is surrounded by difficulties, and where the article is very dear.

We come now to speak of the way in which opium-smoking is spread or propagated. The habit of opium smoking was introduced among the Chinese by a neighboring people, the inhabitants of the Kingdom of Annam, among whom this custom has existed from immemorial times. The Annamites acquired the custom from the people of Java and Ceylon, which belonged to India, the which in turn received it from Persia, the native land of the *poppy.*

As to the Chinese, the drug was first furnished them by the Portugese of Macco; it is not known precisely at what period this colony commenced the importation of opium into China, but it is known that as early as 1767, the annual consumption reached at least 1000 cases.

This branch of commerce carried on by the Portugese, attracted the attention of the English East India Company, and the latter sent opium to the Chinese coast for the first time in 1773. We must recognize the fact that when the English commenced to supply the Chinese with opium, it was forty even almost fifty years after these people, following the example of other Asiatic races had contracted the habit of smoking the drug. In 1800, the consumption had reached 5000 cases; when the Emperor issued an edict forbidding the introduction of opium, saying the habit of smoking occasioned loss of time, and that his subjects exchanged their silver and other goods for the *vile drug* of foreigners. This would seem to indicate that already at that time the large exportation of silver from the country was noticed—an occurrence that produced a depreciation of everything. The Government soon discovered that the habit of opium smoking caused the impoverishment of China; a fact that clearly established the causes leading to the edict of 1800, as well as for subsequent proclamations attributing dreadful effects arising from the use of opium, expressing solicitude for the part of the Government, for the public health, etc. It is easy to see the true motives inspiring these edicts, i. e.; the prevention of silver exportation, an exportation which produced, in fact, very injurious results.

But, says somebody, why does not the Chinese Government draw a good share of profit from the users of opium, allowing it to be cultivated, and placing a tax on it as they do on tobacco in France? The poppy grows very well from the equator to 30° or 40° of south latitude, for it grows in Java, at the Phillipines, at Borneo, in Egypt, etc., and even in China, where for several years past some thousands of cases have been gathered, which have also been introduced by means of smuggling into the southern provinces. But the non-authorized culture of the poppy cannot receive a great extension in the Celestial Empire, where the population is already too dense, too compact, notwithstanding wars, disease and emigration; the, soil no matter how well cultivated it may be, is not sufficient to nourish the inhabitants, and famine is a thing of periodical occurrence. Before permitting the cultivation of ornamental or luxurious products, it is necessary to raise food, as for instance rice especially, and other grains and commodities.

By a wise measure of political economy, the Government believes it to be its duty to interdict and prohibit the use of opium, as a thing of little use and as even injurious if smoked to excess; but the Government agents enrich themselves by allowing it to be smuggled; they even smoke it themselves. The money disappears, the Government becomes angry with Europeans; this is the stumbling block which has produced and will still produce for a long time to come pestilence and war.

It is true that the Chinese find some compensation by the exportation of teas, silks and other products which, according to DeMar reach annually the sum of fifty million piastres, or 250 million francs. ($50,000,000 gold).

Finally, we must say that the Chinese Government does not like to change anything once edicted whether it be good or bad, so that nothing is more difficult to obtain from it than that we call *reform*; off goes the head of the first man who dares to speak of the matter.

Let us now look at the more essentially physiological and medical side of the opium smoking question. And first let us briefly speak a word in regard to the combustion of this narcotic.

Regarding the Combustibility of Opium and Morphine.

In 1855, Derchames and Bernard addressed a communication to the Academy of Sciences, regarding some experiments made for the purpose of determining whether, in the combustion of opium or morphine, its alkaloid is sublimed and whether it is necessary to attribute to the volatilized principle in any way whatever, the physiological effects observed in persons who smoke opium. From their experiments these gentlemen concluded that under such circumstances the morphine is not entirely decomposed, since very appreciable traces of the product are found in the gases of combustion, either of the first material or its alkaloid. In 1861, Derchames undertook the same experiments upon a larger scale. By varying the means of combustion and the treatment of the products, he discovered morphine, and in such quantities, that there can be no further doubt in regard to that point.

From an analysis of his new experiments, the author concluded that in the combustion of opium, whether it be indigenous or exotic, the morphine arriving from either of these bases, is partially volatilized, while the other burnt portion is decomposed. Now, if we consider the physiological phenomena observed among persons taking opium habitually—whether naturally or by smoking it, we will recognize a striking analogy an incontestable similarity, as regards doses, in the narcotic effects evidenced in both cases. If on the other hand we notice the effects of morphine are of the same nature as those of opium, we cannot refuse to admit that it is to morphine (perhaps morphine alone), that we must attribute the phenomena which result from the employment of opium in fumigation.

Having imparted this information let us now speak of the physiological effects experienced in opium smoking. The first aspiration of opium smoke gives a soft and agreeable savor to the palate and nose.

First point of advantage of opium over tobacco, the smoke of which, by its acrid savor, disagreeably surprizes those who have only heretofore recognized the smoke by its odor. The odor of tobacco smoke is agreeable to persons unaccustomed to smoking, who find the first taste of cigar or pipe smoke very bad. Tobacco smoke dries the throat and causes coughing in those who inhale it, while opium smoke when respired causes no inconvenience and is even agreeable.

Another notable difference is, that we are able to smoke opium at the first trial, provided the smoking is not carried too far, while there is no smoker, however great a consumer of tobacco he may be, who has not been inconvenienced, made sick, very sick even, on commencing the habit; a sickness which is analogous to though even worse than sea-sickness. To those who have only once tried opium smoking, it is recognized even as we recognize tobacco, with this difference however, the odor of opium is infinitely more agreeable, or to speak plainer, less disagreeable than that of tobacco. When one smokes too much tobacco (pipe or cigar), there is ordinarily experienced (we speak of those used to the habit), a more or less cephalalgia, the mouth is fatigued, feverish and coated, especially on awakening in the morning.

Opium produces less disagreeable results under similar circumstances. For two or three pipes of the drug may be smoked without producing a marked impression.

In those who habitually smoke opium, the disposition and attitude should be taken into consideration, when noticing the special influence of the drug.

If the male smokers, or female smokers, for women as well as men smoke tobacco and opium, indulge in playing cards, as for instance, bouillote, lansquenet or bakara, they smoke pipes during the intervals of the play and enjoy a game of dice, chess, or checkers. In doing this they become animated and loquacious. Under such circumstances the excitement of gambling is added to the excitation produced by opium.

When the opium smokers give themselves up to this enjoyment of opium after a meal or festival, the "Feast of Roses" at Canton, for example, they refuse meat and drink tea and *sam-chou** and precede their orgies by other voluptuous methods; lounging lazily upon camp beds of richly covered tapestry as they lean upon their elbows with a small lamp before them. With tranquil spirits they are floated off into realms of dreamland, where in happy indolence they remain, caressed and petted by favorite concubines. They often believe, owing to this gastronomic and narcotic ebriety, that their souls have been transported to the Heaven of Brahma or of Bouddha, as all Orientals have faith in the Paradise of Mahomet; and it may be said with truth that though opium has much to do in creating this illusion, the immediate surroundings of the smoker are such as to give a certain reality to the fancy.

As for the passionate smoker, who deprives himself of everything in order to buy opium, he has only one fixed idea, that is, to narcotize himself at night and keep it up for the next day and even days following. In a condition of utter laziness, he withdraws from the occupation and cares of life and the world of living beings, plunging deeper and deeper into the limbo of forgetfulness, like an Englishman who from inveterate habit loses his mind in the darkness of gin. While thus engaged the Chinaman cares for no one, not even himself; he does not eat or drink, owing partially to a want of appetite, but especially for the reason of saving money for the purchase of more opium; negligent, filthy, in rags and tatters, he is stupid and repulsive. See his tottering gait, when as yet in a condition of mental torpor, he seeks at early morning, his favorite smoking den; his step is slow, irregular, uneven, zigzagy, you might well imagine him to be an individual suffering from locomotor ataxia that precedes general paralysis, a disease to which he inevitably falls a victim sooner or later. Pale, thin, haggard, dull eyed, his hair in disorder, he goes to smoke only to awaken again, then to plunge once more into the forgetfulness of sleep. Indifferent to all, disgusted with life and himself, in dispair for the past and present, and only a perspective dream of misery, he again and again seeks the shades of oblivion. Would you ask what dreams he has? they are frightful and the only final relief he obtains is from a complete loss of memory. As regards dreams, what are those of healthy men who smoke opium in moderation, for the purpose of studying its physiological effects, for example? The following was the experience of a competent observer; we write at his dictation.

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*The Chinese have no wine, but they have various sorts of brandy, made for instance from Sorghum (Stalks), and from grain (rice and Millet) Kieo-Tsiou, (sorghum brandy; kau-leau (millet brandy); Fau-Tso, rice brandy.

At first this gentleman smoked two or three pipes in the evening, without perceiving any marked effects therefrom. Afterwards he pushed beyond this point, smoking five or six pipes, representing a consumption of ten grains, or five decigrammes of extract of opium. He went to bed at eleven o'clock at night, and up to midnight felt no peculiar sensation; there was no excitement, no more drowsy feeling thus usual to him at that hour of night; neither thirst or gastralgia, of which so much has been said, for he states that he did not swallow the smoke, only breathed it, and gastralgia never manifests itself except after long abuse of the drug, and from reaction of the brain on the stomach. Our observer was not long in falling asleep usually, and he was ordinarily a good dreamer, retaining always, in the meantime, a clear impression of his dreams. What dreams did he have on this occasion? He dreamt that having received hospitality, while traveling, he went to sleep at a friend's house. He was very uneasy in his sleep, feeling an enormous weight on his chest that oppressed and smothered him. He awoke, (still dreaming), and found lying across his body the bloody corpse of his host. It was impossible to remove this horrible burden; his groans and choked cries waked the domestics of the house who came and removed the corpse, at the same time accusing him of the murder. He attempted to escape, but they cried for help; he was arrested as an assassin, notwithstanding his earnest protestation of innocence. Placed in jail to await trial, he was notified one day that the Court was opened. At the word Court his hair stood on end, and clasping his two hands heavenwards, he cried in lamentation: "O, despair! This is not a dream, but a frightful reality!"

This outburst of anguish put an end to his horrible nightmare, and on awakening, his joy was the most intense he had ever experienced, notwithstanding a marked headache, excitement, acceleration of pulse with heat and moisture of the skin. This dream lasted from midnight until three o'clock in the morning, with its disagreeable, hideous, and horrid incidents. Two hours of agitation and sleeplessness followed, then a little sleep towards daylight calmed the agitation of the early night.

Our observer rested two days without smoking opium and had two good nights rest. On the third night he renewed the experiment. New nightmares, strikingly painful, occurred, producing different mental impressions that it would be useless to here relate. Same awakening, same condition.

After too more days and nights of perfect rest, he again attempted to smoke opium, and with the same result as before.

So opium causes dreaming; but the dreams are so harassing that they become frightful nightmares, instead of the soft, ecstatic, delicious reveries of which so much has been said. Opium-smoking far from leading to blissful erotic ardour, rather benumbs the genital sense, and great opium-smokers are totally indifferent to women.

Perhaps some one may object that the experience of a beginner in the art of opium-smoking would not be the experience of the general rule. It may be that certain idiocyncrasies are poorly adapted to opium.smoking.

On the other hand, may it not be believed that the diet of the Europeans counteracts the effects of the drug? Europeans have a different diet from the Chinese; they are in the especial habit of taking coffee after meals. Now coffee, which is the antidote for opium, may it not give the opium-smoking this bad effect, in place of the charms experienced by the Chinaman who only drinks tea, and knows nothing of the use of coffee?

This objection may be taken at its proper value, if not in France at least in England, where, as in China, they drink tea, and where the use of opium, smoked as well as eaten, has commenced to assume grand proportions, the habit being introduced by those who have returned from India. In 1852 there were imported into London 251,000 pounds of opium.

Until we have further proof, we shall maintain what we have before said of the disagreeable effects of opium, when its smoking is pushed too far.

If the habit of opium smoking costs the Chinese so dear; if it is far from procuring the imaginary joys claimed; if when pushed to excess it causes moral and physical ruin, dementia, consumption, general paralysis and death, why are there then so many opium smokers in China? Because it is a habit gained by imitation and without trouble, when once contracted, kept up and cultivated, progresses always, in the same manner as other habits, especially those calculated to result in injury from excess.

Among Europeans, for example, what is there agreeable and pleasant in snuff taking and smoking? What use or good is there in such habits? Very little assuredly aside from numerous inconveniences. No matter what Aristotle says,[*] the habit of smoking has assumed extraordinary proportions, and is wide spread among all classes of society, and that notwithstanding the hard tribute exacted on first contracting the habit, and the ever very marked indisposition experienced, if one smokes too much or changes the manner of smoking. A pipe often intoxicates a cigar smoker, and reciprocally a pipe smoker is inconvenienced by a cigar. There are days even when the smoker has a distaste for the manner of smoking ordinarily agreeable, and in Europe, as in China, it is considered a bad sign not to wish to smoke when one is accustomed to the habit. It is not forbidden us to formulate in dithyrambic language the delights arising from the use of tobacco in all its forms, and especially that of smoking. You may judge all this by that passage taken from the "Hygiene of the Smoker and Snuffer," a superficial but very humorous epistle. After telling us how painful it is to contract the tobacco smoking habit, the author (Anonymous) continues:

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[*] Allusion is here made to that humorous French distich.

Quoiqu'en dise Aristote et sa docte cabale,
Le tabac est fort bon, il n'est rien qui l'egale.

We doubt exceedingly whether Aristotle censured the Greeks for smoking and taking snuff.

"But when we have learned it, and by religious perseverances surmounted its first obstacles; when the brain is less disturbed by the smoke, then is opened to the young beginner a new world, an indefinable world, a true phantasmagoria that the pen cannot describe, and of which I wish I could give an idea to the detractors of this precious plant; if any such now exist, I should love to play the part of Apostle. A feeling of well being, a voluptious intoxication, a cloud of vapory transports elevates the senses, ravishes us and carries our souls to Fairyland. Ideas follow each other without effort, taking a gentle melancholy tinging that rejoices the soul and heart. Sweet recollections, tender emotions, moments of happiness, too short, alas! when we pass from earth to the enchanted lands of spirits. Divine ecstacy, in which is mingled the past, the present, the future, our dreams, our fears, our hopes."

This is exaggerated language, not in the least inferior to that uttered regarding the pretended magical effects of opium. Though pleasant effects may arise from the use of tobacco, hasheesh, and opium, another thing is to be taken into consideration, outside of the charms of habit, that is, a correlative physical repose. Take, for example, an Arab; see him in his tent, he sits cross-legged and is silent; tasting his cup of coffee and puffing away at his *chibouk*, remaining as automatically posed as a mummy; he does not think even but makes his *kif*. That is to say, he reposes in a condition of moral and physical inertia, his spirit lingering on the borderland of half wakefulness and somnolence, free from all movement, from all connected idea, from all pre-occupation, he rests in a condition of passive torpor.

Hasheesh and opium-smokers also take their *kif* in a similar fashion, and the European, after dinner and coffee, takes his *kif* while smoking a cigar. But all are far from indulging in voluptuous ecstacies or erotic dreaming.

After all there is something about opium, or in the habit of smoking it, especially when viewing the matter from a therapeutical standpoint. The smoke of opium is very agreeable and odorous, having a sweet taste. It can be inhaled without causing fatigue, oppression, or any other disagreeable sensation, except a slightly bitter aftertaste. A pipe, furnishing, according to the manner of smoking, some twenty aspirations, there are, in two or three pipes, what an adult may smoke without producing injurious results, and this calming and meditative smoking may be used in various cases. We have used it in bronchitis in its third stage, that is to say, after the period of invasion and inflammation, after the period of coction and expectoration, when it checks the persistent spells of fatiguing nervous cough. At such times, this stubborn cough may be calmed and dissipated in two days, by smoking opium in moderate quantities at occasional intervals. It produces no dry throat, no feeling of thirst, so commonly attributed to opium, no tendency to vomiting, no loss of appetite, but a beneficial calmness, followed by warmth and moisture of the skin.

The same method may be used in the treatment of asthma, pulmonary emphysema, chronic bronchitis, nervous palpitations of the heart, facial, dental and supraorbital neuralgia, and headache. It may be used in certain gastralgias, in insomnia; in a word, in all indispositions or affections of which neuralgic pain is the predominant element, against which opium constantly acts, owing to its calming properties and its very marked sudorific action.

White poppy, red poppy, calandine, stramonium, belladonna, hyoscyamus, are employed in therapeutics in the form of smoke. Is it not just as logical to employ extract of opium, which may be used without immediate or after dangers, notwithstanding the bug-bear tales regarding the fascination of the drug?

Viewing its employment from a wholly therapeutical standpoint, I have given the special details regarding opium-smoking, and now, as some of the Chinese smoke immoderately, what are the different effects observed among great smokers?

The first impression experienced by the opium-smoker, is that of satisfaction; it rouses him from his morning torpor. He straightens up his body, his eye becomes clearer, while the pupil is slightly contracted; he awakens, in a word; his ordinary tranquility is broken and he becomes more communicative. But this excitement does not carry him to the point of intense joy, anger or fury, and we do not understand why persons claim that in Java, for instance, it is allowable to kill an opium-eater as if he were a mad dog.

They kill drunken men in Europe! That's what the Chinese say, having a similar erroneous idea concerning us.

The great smoker, it is true, is narcotized by his opium pipe, but is inoffensive and quiet, and soon becomes dead drunk; for his sleep resembles profound coma. His face is pale, mouth open, sometimes frothy; his pupil contracted, (it is only on awakening that it becomes dilated); the skin is covered with a cold sweat; the pulse is small and slow. What occurs during this deathlike sleep? Frightful nightmares! Ask the drunkard what he dreams. He continues the habit to drown and forget his sorrows, he says. The same answer is given by the alcohol-drinker of Europe, as by the opium-smoker of China.

The awakening is slow, the torpor is great, the face expresses hebetude, the step is slow, staggering. There is loss of appetite, a breaking down of the digestive functions. The activity, the will, the memory, are diminished; once upon the down-hill grade a loss of the various faculties supervenes, with a tendency towards locomotor ataxia, that forerunner of general paralysis. The cold sweat from which the opium-eater suffers, causes him to ardently desire the drug, the use of which undermines his constitution, owing to the sweats, diarrhœa, with gastralgia, or gastritis, produced. From this marasmus to death the transition requires some time, but it is a very long time, and calls for an excessive abuse of opium.

As to the hereditary consequences that have been attributed to the use of opium, the conclusions adopted seem to be unfounded. That great opium-smokers occasionally suffer from mental hebetude and progressive weakening of the mental faculties, followed at times by insanity we admit, although it is not the general rule; but that their children receive this hereditary influence is a mistake ordinarily; it is the bachelor who has no family relations who usually brutalizes himself by smoking to excess. Such gentlemen have no children, or if they have, such children were born before their fathers had pushed the smoking habit to excess. The children of opium-smokers, if they are raised, and if they do not themselves contract the habit, (following the sad examples of their fathers), enjoy like all other mortals a full share of the moral and physical faculties. They may be occasionally sickly, consumptive, scrofulous, rachitic, or idiotic, as among all other classes, and in a similar proportion; if such be the case, there are other causes aside from the opium smoking habit of their parents.

To claim that this last influence is the principal source of the ills observed among such children, is to abuse the sophism, *post hoc, ergo propter hoc.*

Let us say a word regarding the physiological effects of opium. Given in small doses, it usually produces a sedative influence with a tendency to sleep. In larger doses, it acts as as a stimulant to the cerebro-spinal system, exalting the intellectual faculties, afterwards producing profound slumber, with dreadful dreams, heat of the skin, and more or less abundant sweating.

Preparations of opium long continued diminish the appetite, produce disturbances of digestion, thirst, affected eye-sight, contraction of the pupil, tingling and buzzing in the ear, hallucinations, general nervous excitation, with a tendency to convulsion and disorders of the locomotor system, finally marasmus.

In the year 1845, I saw, at Algiers, a case of poisoning produced by five ounces of laudnum, swallowed by a young officer at a single draught. He entered his room suffering extremely; his struggles and plaintive cries attracted the attention of his comrades, who ran to his assistance and forced the door. In the midst of the torments he endured, his reason was not lost. He regretted his rash act on account of his father, whose forgiveness he asked, praying to Heaven for mercy Notwithstanding the attempts made to save his life, he died a few hours afterwards in a condition of apoplectic coma and asphyxia. His face was injected and marked by violet-colored spots. The abdomen was puffed and the internal fermentation of the opium caused a regurgitation from the mouth and nostrils of an abundant, brownish, frothy secretion having a sickly odor. It will be seen from this, that death from opium is not always as sweet and pleasant, as commonly supposed.

Let us now speak of opium eaters, or chewers.

Persons suffering from opiophagia are less numerous than opium smokers; generally they commence by being smokers, and in course of time the new habit is added to the first; in such cases the smoker on going to the opium den, chews opium in order to induce more immediate narcotism. When his pecuniary resources can no longer satisfy his imperious desire for smoking, he puts an end to his miserable existence by taking a poisonous dose of the drug. In Europe opium eaters are sometimes met with, who follow the habit either from taste, or to investigate the pretended joys, wrongly attributed to its influence, by those who speak in ignorance of the subject.

At the commencement of my professional career I had a comrade who during his watch on duty, used up all the opium he could find in the pharmacy and laboratory. Having noticed the habit, he acknowledged that he was constantly eating extract of opium. I asked him what sensations he experienced, and he refused to explain; but though only aged twenty-five years, he was pale, haggard, dull eyed, morose, even refusing to smile. He paid no attention to questions asked, and his memory was enfeebled to such a degree that he failed to pass his annual examination. Notwithstanding friendly advice and reproach, he refused to quit the habit, and died at an early age.

Personally, I have had no experience with the use of extract of opium, only having taken it occasionally in pills, or powders, as a medicine, but I can imagine that aside from its sweetish bitter taste there may be some charm about its physiological after effects, although such effects were not manifest in my case. Opium taken in solution enters the stomach and is absorbed by the digestive apparatus, while in smoking it acts on the air passages. At times opium acts as a therapeutic agent, as for obstinate neuralgias, etc. Under such circumstances, the quantity being progressively increased, and the medicine kept up for some time, the physician is apt to make an opium-eater of his patient.

This happened in the case of another comrade, who, on account of facial neuralgia, contracted the habit. This gentleman was not injured, as regards his mental faculties, by the drug. An able chemical expert, a talented writer on this branch of science, he has lately made a most brilliant discovery in applied chemistry. After nearly thirty years of absence, I found him very thin and physically shattered, as he was before, but he was the same intelligent and faithful worker, although he had never ceased to take opium.*

Finally, I might cite, as a still more extraordinary case, that of one of my clients who, on account of facial neuralgia, dating back more than twenty years, was able to take in place of opium, the acetate of morphine, not by millegrammes, or centigrammes, but by the gramme, (15 grains). That is to say, he took as much of the poison in twenty-four hours as would have served to destroy several persons.

This case of extraordinary tolerance would cause us to have less doubt regarding Mithridate, if history had not forgotten to say what poison or kinds of poisons he had become accustomed to using from long habit; for it is impossible that the celebrated King, however robust he might have been, should have a tolerance for all the toxic substances known at his time.

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* This gentleman is Verguie, inventor of fuschine, or analine colors.

In China, although opium-eaters are rarer than smokers, it is an easy task to pick out, in the smoking dens, persons having both habits. In fact, when the inveterate smoker is inhaling the drug at the lamp flame, he frequently desires to hasten its narcotic action, and for this purpose takes the aqueous extract of opium in various doses, according to the amount he can tolerate. In a word, he finishes by chewing opium and swallowing the saliva. Sometimes he sleeps too well, and owing to intemperance, or to the premeditated idea of suicide, never wakes again.

The attempt is often made to save such poisoned persons, by causing them to vomit; but this is generally useless trouble, if the party afflicted has finished his opium eating by swallowing the pounded flesh of a small red fish, or if from malice such food has been forced on him.

We cannot better establish the authenticity of this food than by transcribing a letter written by the Lady Superior of the Sisters of Charity, at Ning Po, to Dr. Genier, of Saiguon, July 2, 1861:

"There is one thing I forgot to ask you about; it is regarding the poisoning cases that we are so often called on to care for.

"As I told you, on your visit to Ning Po, we frequently save the lives of persons poisoned with opium by making them vomit. But as for those poisoned by a kind of fish, taken after the opium is eaten, we have never been able to vomit them, and consequently cannot save their lives.

"The fish thus taken are those small red fish that we keep in vases, or jars as curiosities (gold fish?). The Chinese pound them up while fresh, and after mixing the mass with water, they drink this liquor of a new kind and die. Most often, however, it is a person who wishes to kill another, and makes his victim take it after the unfortunate has partaken of opium. Ordinarily they make their victim drink this beverage under the pretext of saving him, claiming it will make him vomit; just the contrary occurs. We have discovered also, that this fish, eaten without anything else, is a poison without a known remedy. We ask you, doctor, whether you recognize this fish, and also, whether you can name some antidote, or, at least, some strong remedy to provoke vomiting. If you can, we could cure such cases. I send you a dried specimen of the fish named."

The red fish, of which the Lady Superior spoke, has a length of from four to five centimetres, and one to one and a half in width.

It appears to belong to the Chinese genus cyprin, a family of the mulacopterygiens.

We have now shown the inconveniences arising from the use of opium, smoked and eaten, as well as the small advantages found in following the habit.

In conclusion, the reader may ask me, as a physician, what do you think of the habit?

I answer, medically speaking, that wisely employed, opium smoking may be very useful, even very salutary in a number of cases.

Let it be remembered that Sydenham declared he would renounce the practice of medicine, if he had to stop using opium.

Now the English Hippocrates would have assuredly advised the employment of opium in smoking, if he had known of such a thing. My convictions regarding its employment, are stronger on account of my personal experience, and the results of its application in the case of numerous patients.

After several years of experimentation, during which time I have employed opium smoking as a therapeutic agent, in a series of chronic and neuralgic affections, especially those of the chest, in the dose of from one to ten grains burnt, in the twenty-four hours, a very salutary sedative action may be obtained in the following affections: Bronchitis and chronic laryngitis, excluding the acute cases; whooping-cough, when the patient is capable of smoking; asthma, angina pectoris, nervous palpitation of the heart, gastralgia, and enteralgia.

In the second class of cases—facial, dental, and supraorbital neuralgia and headache; muscular and articular rheumatism; for it is well to note that besides the sedative action of opium smoke, there is also, when the drug is used in large quantities, a profuse diaphoresis; this may be provoked at the pleasure of the physician.

It may be asked, why not supply the place of the pipe with medicated cigarettes? At one time I labored under this delusion, and sought to have some sweet substance impregnated by extract of opium. After experiment I found such cigarettes to be failures; the opium smoke mixed with that of burning paper was acrid and injurious, and pulmonary aspiration an impossibility, owing to the irritation produced. Besides, in smoking the cigarette the greater portion of the opium is evaporated before reaching the mouth. The objection urged against opium cigarettes is applicable to all other medicated articles of this kind. Any medicated substance intended for aspiration, should be burned in the form of an extract, as in the case of extract of opium, in an opium pipe, which will most certainly be called at no remote period, a *pipe for burning medicated extracts.*

Reviews and Notices.

On the Recognition and Management of the Gouty State in Diseases of the Skin. By L. Duncan Bulkley, A. M., M. D. This paper, read before the American Medical Association, is a reprint from the *American Practitioner.*

The following indicates the thought both of nature and treatment of many skin diseases as considered in this essay: "In an analysis of one thousand cases of skin disease in my private practice, now in process of preparation, I have been struck on reading over the recorded histories, with constant occurrence of the elements of gout either in patients themselves, or in their immediate connections, and also with the important part which the management of these elements has played in the cure of the cutaneous diseases."

In this quotation Dr. Bulkley very judiciously uses the word "*management*" rather than "*treatment*," because, as he says, in the gouty state "the elements of causation are manifested and extend into the habits of life of the patient;" hence, "its removal requires something more than routine treatment or the prescribing of this or that drug."

It requires a thorough investigation of the errors of life and their rectification, as far as possible. This is accomplished by diet, hygiene, and medicine, the drugs administered being last in importance. E. B. S.

Address to the Rocky Mountain Medical Association. By J. M. Toner, M. D. 1877. p. 112.

The gentlemen who were delegated to the American Medical Association's meeting, held in San Francisco in 1871, organized a society of a social character which holds its annual re-unions at the same time and place as the National Association. On these happy occasions the famous trip across the mountains is discussed, and reminiscences of the golden past are revived. As originally constituted the society numbered one hundred and twenty-three members, but death has entered this circle of fellow-travelers and nineteen of the original organization have passed to that mysterious realm beyond the stars. 'Though relentless time reduces the membership from year to year, the survivors still keep the memorial lights on the altar of memory burning. Like the story of the "Last Man," the time will come, let us hope it may be in the far off future, when only one member of the Rocky Mountain Medical Association shall be left. It is our ardent wish that this last member may be Dr. Toner; for who is so capable of delivering the last address, and who could do it with more feeling, and in a more kindly and gentle spirit.

The little volume before us is a labor of love. Written in the clear and charming style usual to its author, the volume is replete with interesting matter, and contains an unusual amount of rare information. Unlike most addresses, this one is of permanent value and deserves a wide circulation, not only for the reason that it is exceedingly readable, but also on account of its scientific and historical importance.

Dr. Toner is an *erudite*, a delver in the realms of the almost forgotten past. During the last few years he has rescued from oblivion many points and facts, that but for his unaided efforts, would have been lost to the world forever. Painstaking search, patient investigation, incessant and unwearied labor, on the doctor's part, have all combined to render his name famous in the annals of American medical history. As a medical antiquarian he stands without a peer in this country. Many so-called scientific books, published within the last few years, do not contain a fractional part of the valuable material contained in this modest little address. A man of high culture, fine literary attainments, a great reader and profound thinker. No wonder that Dr. Toner's publications are always eagerly sought after.

It is not our intention to indulge in fulsome flattery, for it is only in rare instances that we praise at all; nevertheless, the modesty of true merit always has a charm about it, and in these days of journalistic degeneracy, when mediocrity is exalted for the purpose of aiding some impecunious publisher to dispose of his medical trash, it is refreshing to be able to speak a good word for a deserving author. We can heartily recommend Dr. Toner's address to the readers. T. C. M.

Surgical Uses, other than Hæmostatic of the Strong Elastic Bandage. By Henry A. Martin, M. D. Boston, 1878.

This is a pamphlet of some twenty-seven pages. Dr. Martin lauds the use of these bandages in the treatment of ulcers of the leg, diseases of bursæ, œdema and anasarca, erysipelas erythema, injuries of bones, rheumatism and neuralgia, varicose veins, etc. Numerous cases are reported where the use of these bandages is claimed to have been followed by successful results. Other treatment than the bandage seems to have aided the highly desirable end.

A postscript informs us that Martin's elastic bandages are to be otained from certain Boston firms. Many gentlemen in the profession now-a-days obtain *cheap advertising* by the publication of pseudo-scientific articles of this kind, their sole interest in the matter being a per cent. royalty derived from some manufacturer in whose interests such "puffs" are written. We trust Dr. Martin is not a man of this kind, but give him the benefit of the doubt. In the meantime, we have no question but that the ordinary elastic bandage, to be obtained of any respectable drug dealer, will answer every practical purpose. T. C. M.

Battey's Operation. By J. Marion Sims, M. D. pp. 31.

This is a reprint from the *British Medical Journal* of December last. The paper is a vindication of Dr. Battey's operation; *i. e.*, *normal ovaritomy.* Dr. Sims shows his usual generous spirit, and defends Battey and his operation in a truly manly style. We do not think there can be any question hereafter as regards Dr. B.'s claim for priority. T. C. M.

Valedictory Address. By Jno. V. Shoemaker, M.D. Philadelphia.

This address was delivered before one of the classes of the Philadelphia School of Anatomy and Surgery. The application of hot and cold baths to the treatment of skin diseases is highly extolled. The pamphlet is quite readable, and shows considerable research on the part of its author. T. C. M.

Observations on Pseudocyesis. By J. W. Underhill, M. D., Cincinnati, Ohio.

This pamphlet is a reprint of the author's paper which appears in the *American Journal of Obstetrics* for January, 1878. The author's usual intelligence and industry are exhibited in the preparation of this paper. His discussion is based upon three cases of pregnancy: "The first was that of a young woman who had never been married; the second was at the menopause and married; the third also at the menopause, but a widow."

In his remarks Dr. Underhill offers this genuine proposition, as a key to the phenomena of pseudocyesis, and in reference to this delusion concerning pregnancy: "*When we come to inquire carefully into the mental condition we will ordinarily find also other evidence of deviation from the normal standard.*"

An interesting point discussed in the paper, is the relation of pregnancy, or fancied pregnancy to certain questions of medical jurisprudence. A woman is condemned to the death penalty, and pleads pregnancy in delay of execution. The law accepts the plea, but one author calls attention to some of the absurdities of determining the existence of the condition. Especially the old English provision of a jury of matrons is commented upon as peculiarly devoid of wisdom, if matrons are liable to be so deluded as to their personal condition. Of course the opinion of Dr. Underhill, and a proper one, is that all cases of pseudocyesis, whether of personal delusion, or assumed for any purpose of deception, should be subjected to the examination of intelligent physicians, who may bring to the test the resources of modern gynecological diagnosis. The paper is a very readable one, and a fair contribution to our current literature. E. B. S.

Essays on the Treatment of Skin Disease. No. II. On the Treatment of Chronic Exzema by a Glycerole of the Subacetate of Lead. Second Edition, by Balmanno Squire, M. B. Lond, Surgeon to the British Hospital for Diseases of the Skin. Reprinted from the "Medical Times and Gazette" of March 18th and 25th, 1876, with appendix. J. & A. Churchill, London: Price one shilling.

This little pamphlet gives the latest and most successful treatment of eczema, and we would commend it to the medical profession.

On the So-called Eczema Marginatum of Hebra. A clinical study by L. Duncan Bulkley, A.M., M.D.

This is a very interesting report of experience in the observation and treatment of a form of eczema that has hitherto for the most part escaped notice. The eruption appears most frequently on the upper part of the thighs and where the scrotum comes in contact. It is accompanied with terrible itching, and is very intractable to treatment.

Dr. Bulkley relates the history of a number of cases, in all of which the microscope revealed vegetable parisitic spores, very nearly identical with tinea tonsurans. Indeed, Dr. Bulkley regards this form of eczema as clearly of parisitic origin, and treats it accordingly. The remedy which he almost exclusively relies upon is sulphurous acid applied to the parts generally in full strength. His directions are about as follows:

"I generally advise patients to buy an unopened bottle of Squibb's sulphurous acid, to open it carefully and fill a one ounce bottle, cork again quickly, and make all the applications from the smaller bottle, which is to be refilled as often as required. I am convinced that much of the sulphurous acid of the shops is absolutely worthless. It is necessary then to use freshly made acid which has been kept tightly corked, and as this has been my habit for several years, I seldom find difficulty in obtaining the results I desire from it in vegetable parisitic affections of the skin.

"In regard to the mode and frequency of its use, I advise the parts to be well saturated with it two or three times a day; there is no harm in applying it much more frequently if it does not inflame the skin; indeed, many patients resort to the application of it whenever the itching calls attention to the disease."

The pamphlet is a reprint, the paper being first read to the meeting of the American Dermatological Association, at Niagara Falls, September, 1877. E. B. S.

Are Eczema and Psoriasis local diseases of the skin, or are they manifestations of constitutional disorders? By L. Duncan Bulkley, A.M., M.D. A reprint from the Transactions of the International Medical Congress, at Philadelphia, Sept., 1876.

Dr. Bulkley's long devotion to diseases of the skin, and his connection with the skin department of the Demilt Dispensary, New York city, entitles his views to consideration. The discussion is sufficiently full and candid, and the conclusions to which he arrives point evidently to the theory of the resemblance of these diseases, rather to those which are well recognized as constitutional.

The conclusion of the author, number vi, is an interesting one, practically: "Both eczema and psoriasis resemble gout and rheumatism, in certain respects, and are dependent upon a somewhat similar, although as yet unknown constitutional cause." The whole paper is rather pathological than therapeutic. E. B. S.

Essays on the Treatment of Skin Diseases. No. IV. On the treatment of Psoriasis by an Ointment of Chrysophanic Acid. With an appendix of comments of various Authors by Ballmanno Squires, M. B., Lond., Surgeon to the British Hospital for Diseases of the Skin. J. and S. Churchill, London.

Price Two Shillings and Sixpence.

This is a recent discovery, and a specific in a disease, that has always proved obstinate, and considered incurable except in rare instances. The author thinks it will be found efficacious in many of the skin diseases.

Compulsory Vaccination. By Joseph Jones, M. D., Professor of Chemistry, etc., in the University of Louisiana, etc.

This essay is a reprint from the *New Orleans Medical and Surgical Journal* for January, 1878. It perhaps contains no new facts, but the observations and statistics of Dr. Jones are valuable, as strongly corroborating previous views and experiences. The suggestions presented are for Louisiana and the city of New Orleans especially.

Dr. Jones believes that "*small-pox can be successfully combatted and eradicated only by thorough vaccination of every man, woman and child.*"

Dr. Jones states that during a period of ten years and ten months, 1867–1877, in which the attempt has been made in New Orleans to arrest small-pox by disinfection, isolation, and the removal of patients to a small-pox hospital, the disease has prevailed to a greater extent than ever before in the history of that city, during the American domination. The paper goes on to show that from 1803 to 1861 small-pox was of comparatively rare occurrence in New Orleans, but that during the past fifteen years there has been a progressive increase. This increase of small-pox the author attributes chiefly to the crowding of the negro population, and the neglect of vaccination by this class of the population.

The plan proposed by Dr. Jones is to establish depots of reliable and fresh vaccine matter, which are to be systematically maintained. To create for each Congressional District an intelligent medical superintendent of vaccination, who shall make an annual census of his district of vaccinated persons, and be responsible for the vaccination of all who have not been properly vaccinated, or suffered from small-pox. The authority of the superintendent being enforced by proper legislation. E. B. S.

Annual Address before the American Gynecological Association. By Fordyce Barker, M. D.

An able and scholarly paper. We only regret that the essay is not longer. T. C. M.

A Comparison of European and American Climatic Resorts. By George E. Walton, M. D.

Quite a readable compilation, but contains nothing new. Two very handsome charts accompany the pamphlet. T. C. M.

New York Ear Dispensary. The report before us makes a satisfactory exhibit of the condition and work of this institution. The medical staff is competent, and commends the Dispensary as reliable.

For any information, address Dr. S. Sexton, Surgeon in charge, S. W. Cor. Ninth Avenue and 36th St.

A German paper gives a test for watered milk which is simplicity itself. A well-polished knitting-needle is dipped into a deep vessel of milk and immediately withdrawn in an upright position. If the sample is pure, some of the fluid will hang to the needle; but if water has been added to the milk, even in small proportions, the fluid will not adhere to the needle.—*Med. Brief.*

New and Popular Music. Published by F. W. Helmick, 136 West Fourth Street, Cincinnati, Ohio.

"Declined." By F. Hardway.

"Lullaby" as sung in "Fritz." Composed and sung by J. K. Emmet.

THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

Vol. XXI.—MAY, 1878.—No. 5.

Original Communications.

Article 1.—The Physiology and Psychology of Religious Revivals.*

By Z. COLLINS McELROY, M. D., Zanesville, O.,

Physician to the City Infirmary; Member of the Muskingum County Medical Society; Member of the Licking County Medical Society; and of the Perry County Medical Society, etc.

That there may be no occasion for misunderstanding between us, in the discussion of the rather out-of-the-way subject for a medical society I have selected for my subject, let me state in advance, that I approach my self-imposed task of studying the Physiology and Psychology of Religious Revivals in a reverent frame of mind. A firm believer in the immortality of the soul of man; and in the existence of a personal Deity; and in the verity and truth of the Bible, as a revelation from God to man. Nothing can be more foreign to my purpose than scoffing at religion, or of finding fault with the mode of conducting religious revivals. My purpose is, in short, and in all sincerity, to present the results of a deliberate

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A paper read at the session of the Muskingum County Medical Society held in the city of Zanesville, Ohio, March 14th, 1878.

and scientific study of what the teachers do, and how they do it, as well as what is done to the converts, old and young.

Let me further ask your indulgence to say, that when human knowledge has extended a little further, and the proper man appears to write the physiology of the Bible, it will be a book of deep and absorbing interest. Enough is already known to make it a curious, instructive and interesting work. But it must, in the very nature of things, become increasingly so in the future. No friend of religion and the Bible need fear anything from science as an ultimate result; nor fear that human knowledge will ever get abreast of, or in advance of the Bible; at least not until the created wields the power of the Creator, a thing not at all probable, either now, or at any time in the future.

And once more, I do not propose to do anything beyond trying to find explanations of phenomena I have either personally witnessed, or occurring in my own time. I propose simply to take civilization, and human society as it exists, and as I have formed part of it, for nearly half a century in the State of Ohio. I am convinced, however, that the explanations I shall offer, will be applicable, with unimportant modifications, to like phenomena no matter where occurring, whether in the past, present or future.

Half a century since, religious revivals were conducted at times in churches, or other buildings. At least once a year there was held in each large neighborhood an open-air, or "camp-meeting" lasting from four days to two weeks, depending on the interest manifested in it by those in attendance.

The preachers were usually good extempore speakers, as was also the lay aids, who always participated in the work. The themes presented by them were various, but generally an effort was made to bring home to each individual that they were by nature sinners. That, as such, a way of salvation was provided through the Saviour. The terrible condition of the lost was a favorite and effective topic for preaching. Sometimes large numbers would become what was called "awakened," sobbing, crying, and pleading for mercy and forgiveness. After a longer or shorter interval, sometimes only a few hours, at others extending to days, and more rarely to weeks or months, the awakened would find repose, peace, and happiness, in the sense of "sins forgiven," and and acceptance by God. The more demonstrative ones often gave vent to their feelings in loud shouts and ejaculatians, as "Amen," "Glory to God," "Blessed be the Saviour," etc.

Very many of those who professed to have obtained religion, evinced in after life, that changed character to which religion undoubtedly leads.

Passing over the transition stages of half a century and less, a modern revival of religion presents a somewhat different aspect to the observer. The key note is: "Christ died for you and for me." There is ordinarily one recognized leader, with more or less "assistants," or "workers," as they are called. Shorter or longer hymns are sung to such strains of music that the whole congregation can, and do for the most part, join in singing. Prayers are frequent and short. Persons desirous of being conversed with by "workers," are called out in various ways; sometimes by holding up their hands in open meeting; at others, by remaining after the dismissal of the general audience. Frequently in the course of the "remarks," persons "who think religion a good thing to have," or some similar test, are requested to signify it by raising up one or both hands. Formal sermons are rarely preached. Some striking passage from the Bible is read, and briefly commented upon. The remainder of the discourse, or exercise, consisting of narratives of Christian experience, and incidents of life illustrating it, by converts themselves, or by speakers and workers. The central idea is, and it is never lost sight of: "Christ died to save sinners."

Half a century ago, children were not taken much into account. Now they are regarded as of the highest importance. Meetings are appointed particularly for them, and the exercises specially adapted to their condition. They readily take part in singing, and the repetition of prayer offered by one of the speakers, after the manner of liturgy. They are frequently called upon to hold up their hands as an assent to their "belief in, and love for Christ, and their desire to live for His glory," etc.

Many minor details are necessarily omitted, partly on account of the limits to which I must confine myself, and partly because they are not essential to my present purpose. A general outline, exhibiting the main features of the conduct of a "revival" now, to whose faithfulness all shall assent, is all I desire to place before you.

Religious revivals offer nothing to study, separate and apart from widespread interest in the public mind on any other subject, as politics, temperance, patriotism, war, or any other topic commanding public attention, at times, to the exclusion of almost everything else.

The subject invites in its discussion an excursus into the boundless realms of human speculation. This I shall endeavor to avoid, and confine myself as closely as possible to the domain of the demonstrable, in so far as the nature of the subject will admit.

That there may be no source of misunderstanding between us, let me here say that I use the word physiology as referring to organic structures that perform a function, or what we understand as functional duty, of a more or less natural character. Psychology, as referring to mind phenomena, the function of the structural arrangement of a part of the brain matter of a human being.

A critical examination of the words, mind, soul, spirit, and intellect, as applied to, or as they refer to man, brings to light the fact that they are used as about synonomous terms; that they really mean and refer to one and the same thing. The religious world, as well as others, use another term, to-wit: "heart," as somehow closely identified with soul, or spirit, and supposed to be, or is referred to as the seat of the affections, as love, jealousy, etc. It will be seen, directly, that this use of these words can hardly be considered as representing the facts of life.

In regard to all psychological or mind phenomena, you will please understand that it is only known through structural arrangements of matter. And that when mind studies mind, in itself, or others, or the work of mind, or mind, it is one organic structure studying another, or other organic structures. And that the structural arrangements of the brain matter performing mind functions are the result of external or educational influences. And as these cannot by any accident be in all respects the same to any two individuals, no two minds are ever found exactly alike. And this is an essential concomittant of individuality, a thing we are all conscious of possessing. In a word, we know nothing of any phenomena pertaining to an individual, or to general nature by which we are surrounded, only through a structural basis. Every faculty, every function performed by a living being, is wholly dependent upon, and through structural arrangements of matter.

All through the realms of nature, organic and inorganic, structure and function are inseparably associated. Without the special forms of structure of matter, nothing can be known of any life phenomena, instinctive, intellectual, or spiritual, organic.

As a physical inquirer into the phenomena of religious revivals, I find myself limited to matter, forms of organic structure, and functions performed. Instinct, I understand to be the function of forms of organic structure, transmitted from parent to offspring, more or less perfect at birth, and may best be studied in vision, hearing, and common sensibility, as the simplest examples.

The instinctive mind, or psychological phenomena, have structural forms which are strengthened by the accidents and exegencies of life, or in other words, experience; and the fact is recognized in various ways, as the caution of the old fox, as compared with the young; the greater wisdom of the aged, etc., but still are inherited, transmitted from parent to offspring, as sight, hearing, and common sensibility, etc.

What we call intellect is the result of education, whatever that may be; and we shall see what it really is before we get that through.

There is a much larger proportional mass of brain matter to each human being at birth, than belongs to any other member of the animated kingdom of nature. Why this is so, has been a problem awaiting solution for many centuries. I have solved it for myself, and to my entire satisfaction.

Where there is no brain material, there can be no education. Where brain matter has already permanent structural forms, performing functions necessary to, or pertaining to the life of the possessor, education will be a slow, difficult, and in many individual cases, an impossible process. This apparent surplus brain matter of human infants, is the matter to which structural forms can be added by educational processes, accidentally or designedly. Much of the education of every human being is accidental. This is illustrated in the aphorism: "A burnt child dreads the fire." The burning, with accompanying pain, finds its record in structure, and that record performs a function we call memory. It has so far been educated that it will respect fire, and will not willingly place itself in such relation to it as to be burned again. And what is true in this instance, may be true of something exactly opposite, to-wit: something that gives rise to pleasure, or something that is agreeable, which will find its record in structure, and the function will be to repeat the act, or process, whatever it may be.

The mind phenomena which we are engaged in studying is thus complex:

1st. Instinct; more or less perfect at birth, as sight, hearing, and common sensibility. That is, the organic structures evolving, or performing these functions are provided for in our organic natures. But they are susceptible of modification, enlargement, or otherwise by educational processes.

2nd. Intellectual; depending on forms of structure added by processes called educational, to brain matter provided for at birth; but formless, so to speak, quick and ready, in virtue of rapidity of the changes of material, to take structural arrangements, by external influences, which will perform intellectual functions.

That these things are so is evidenced by the different intellectual characters men wear of different nationalities, which are due merely to different external conditions, whether barbarous, savage or civilized. An illustration is seen at this time on our Pacific coast in Chinese immigration. If the structural arrangements of Chinese brain matter could be changed in any reasonable time so as to perform American intellectual functions, the problem would need no attention, no more than immigration from Europe. Experience, however, has shown this to be a very difficult process, so difficult as to threaten the very existence of American intellectual existence and civilization; and hence the commotion there in regard to it. But we need not go from home to find illustrations, for they may be seen all the time in those with whom we come in daily contact, in our commercial, social, and domestic life.

Of the existence of soul, or spirit, we have, and can have no knowledge, only through structural forms of matter. Our self-consciousness of the possession of an immortal spirit, which will survive the decay of our bodies, is through a material basis, and partakes of the nature of the instinctive faculties; *i. e.*, provided for in our organic natures; but is enlarged and strengthened by educational influences. But this self-conciousness of the possession of soul or spirit, differs from any other psychological endowment.

These have seemed to me the necessary preliminaries to any study of the Physiology and Psychology of Religious Revivals. And it is seen at a glance that they come strictly into the domain of physiology and psychology.

Whatever is done by leader, or leaders, and workers, are strictly educational processes. And the people for whom they labor are to be educated, so to speak, in regard to their spiritual condition. And an essential condition of conversion is to have new structural arrangements of brain matter, to the end, that the psychological functions of a religious convert can be performed. It need not be any matter of wonder to us, as it was to Nicodemus, when told by Jesus, that to become a convert he must be born again. Physiology and psychology were then unknown. The act of becoming a Christian is really and truly a new birth, in that new forms of structure are thus given, by educational proceedings, to brain matter, dominating in their influence on the social and individual life of him, or her, who has been born again.

With a certain proportion of the so-called converts, these added forms of structure are permanent, and control the after life of their possessor, be it long or short. With others, they are evanescent, and, therefore, give way to other educational influences or surroundings, as was the case with Peter, when accused of being in the service of Jesus by the damsel. Saul's conversion, as narrated in the Acts, is a striking instance of an intellectual convulsion, completely changing the structural arrangements of the organic matter of his brain almost instantly. And it was permanent, just as many conversions are permanent in our own day.

Let me say, once for all, that I give every one the privilege, which, by the way, they have without it, the right to use any nomenclature they please in reference to the phenomena under consideration. They may call it, as I do, changes in the structural arrangement of brain matter; or changed forms of organic structure; or by any other they please; for there is as yet no nomenclature settled by usage or agreement, as the views here presented have not yet found their way into text books, or accepted by the learned world. The central fact that I dwell upon is, that educational influences leave their impression, or are recorded in the structural arrangement of the brain material of the educated This seems to me to be a self-evident truth. But as function is, in fact, the expression of structure, I best understand it by saying, and thinking of the changes, as in some way connected with the molecular, or cellular arrangement of the structure of brain matter.

It must be remembered, too, that the results of educational influences, records in structure, may be lost, or impaired, no matter how perfect they may have been, at any stage of life. They are lost in the condition we call insanity. They are dimmed, or wholly obliterated in some who live to great age.

Then, again, when these educational influences, no matter where or how obtained, lead men to the commission of high crimes, as murder and arson, the laws of civilized society condemn their possessors to physical death, or isolation in confinement during life. And it seems to me wisely, and properly so, even though they cannot be transmitted from parent to offspring. But, if offspring are brought up under such educational influences, they will thus be perpetuated; while the good of society demands their extinction, their wiping out, so to speak, that perpetuation may be impossible. So it was with the God-Man. His execution, and the mutilation of his body, rendered reproduction of his physical nature impossible. And it would seem to have been necessarily so, that any one claiming descent from Him in aftertime, should be at once, and forever known to be an impostor. The mode of physical dissolution actually passed through was the only one rendering reproduction of his physical nature impossible. Therefore, there has been up to this time, but one God-Man on earth.

The physiological conditions of a religious revival may be stated to be about as follows:

1st. A human community.

2nd. The individuals composing the community to have brain matter in such organic condition, that educational influences may be recorded in its constituents, so as to perform the functional duty designed by the educational processes.

3rd. An essential pre-existing condition of a religious revival in any community, is that it shall have had more or less religious education, recorded in brain structure in such a way as to be more or less passive, not dominant; but capable of such changes, or additions to its molecular or cellular arrangements of structure, as to bring religion prominently into the foreground, as a dominant influence; which influence, again, will be the expression of cellular brain structural arrangements, or if not exactly cellular, in some other feature of organic existence.

4th. The leader, or leaders, teachers and workers for a religious revival, must present some simple religious truth to those whom they desire to become converts; it may be the unspeakable, and dreadful condition of the lost, or it may be the story of the cross, or some incident of man's spiritual redemption by the God-Man.

Nothing complex must be prominently brought forward. A single feature, as the joys of Heaven, or the sufferngs of the lost, must be dwelt upon as may be found most successful in recording itself in the structures of the brain matter of those who are sought as subjects of the revival. Structural arrangements of brain matter, capable of performing functions, are essential conditions of success.

5th. Narratives of Christian experience by leader, teachers, or workers, and by recent converts, all so simple as to be comprehended by small children, after the central simple truth spoken of, must form the bulk of public exercises in public meetings. I repeat, again, that nothing complex, nothing about which men will differ, has any proper place among religious revival services.

6th. Those having brain matter in the most unstable conditions of organization, commonly called "nervous persons," are likely to become the first converts; or, in other words, are the first persons to have such structural arrangements of their brain material by the educational processes to which they are subject, as to be capable of performing a dominant function.

7th. Those on the other hand, having brain matter in more stable conditions of organization, will offer, in many individual cases, obstacles which cannot be surmounted, in effecting such changes in the cellular arrangement of their brain matter as to perform the functions of a new convert; *i. e.*, that religion shall be the dominant feature of future character.

8th. Such views, based on the facts of physiology, harmonize and reconcile all the facts of individual life, brought about, not alone by religious revivals, but met with wherever human beings are found, in all states of civilization, and in various conditions of religious or secular life, Pagan, Idolatrous, Mohamedan, and Christian.

9th. That young persons of both sexes, offer the most favorable condition of brain material to receive the molecular arrangement of structure which will perform religious functions, that is, become dominant.

10th. An understanding of what is called "back-sliding," is reached when the molecular arrangement of brain matter is looked to, which cannot be obtained in any other way. For, whenever other educational influences so modify existing cellular arrangements of brain matter, so as to render religious functions passive, and bring forward other dominant functions, the person is known as "back-slider."

11th. No religious revival is possible, only among people who have had previous religious training, so to speak. And no preacher, teacher, or speaker, can be universally popular who tells a congregation anything they do not already know more or less about, unless it be a narrative of some incident of life bearing on the subject.

12th. The local ministry and sabbath-schools in any community, are, therefore, the real instrumentalities which renders a revival of religion possible in any locality. For, if the people were not previously prepared by the results of their teachings, the services of a revival may just as well be conducted in a foreign and wholly unknown language.

The services of a Buddhist, or Brahminical propagandist, could hardly be very successful in the state of Ohio, because the people are unprepared for it by any previous educational influences.

American and Western European Missionary work, in Eastern Europe, Asia Minor, Asia, Africa, and South America, to say nothing of our own aborigines—Indians—makes slow progress compared with that of a modern religious revival among people prepared for it by previous educational influences.

Having thus stated the Physiology of a Religious Revival, I propose to place before you its Psychology. And by Psychology, you will please remember, I mean, mind or intellectual phenomena, not soul, or spirit. I have already stated that Mind, Soul, Spirit and Intellect, are recognized as synonomous both by Lexicographers and the ablest theological writers. Of soul, or spirit, which are synonymous, each of us have self consciousness of its existence: that is, the existence within us of something which will survive the physical death of our bodies.

That, to my mind, cannot be the intellect, so-called, because the intellect is the creature of educational influences, influences altogether exterior and not essential to physical existence, as seen in the insane, imbecile, and idiot. Such a view, it seems to me, excludes from the possession of souls, or spirits, the imbecile, the idiotic, as well as the deaf, dumb and blind, when all three senses are absent in any given case. It excludes very young children, because they are without intellects. They have the material, the brain matter, ready to receive, or arrange itself in forms of structure, to perform any Psychological function. Then again, it places the Soul or Spirit in this dilemma, that it grows, reaches an acme, and, if physical life is sufficiently prolonged, many cases, undergoes the process of decline and ultimate extinction.

For myself, therefore, I have no choice but to limit Psychological phenomena to the molecular, or cellular arrangements of brain matter, brought about by educational influences, good or bad, sought or unsought, by each possessor. Thus viewing it upon its naked facts, and that alone is the nature of my present study, the awful truth that "Evil communications corrupt good manners," is brought prominently into the foreground; and discloses the exalted functions of teachers in impressing the brain matter of pupils, or the taught, with structural arrangements, that will perform certain functions, more or less dominant in their influence. That, in fact, the teacher is performing a veritable act of creation, so to speak, supplemental, and only inferior in dignity, to the original acts of creation, by the Great I Am; but differing in this important respect, that the molecular arrangements of brain matter thus created, are extinguished with the death of each possessor; and not carried forward in the acts of perpetuating and multiplying their kind, as are the forms of structure which perform the instinctive functions of brain matter.

Of the soul or spirit, we know, and can only know of its existence, through organic forms of structure of brain matter. And I find it altogether beyond my capacity to believe that the Spirit, the immortal part of man, can be subject to the mutations and changes of structural arrangement of brain matter, which are continually accruing from birth to physical death. Rather let us conclude that in some way we do not now comprehend, that it is independent of all such changes and influences, which are strictly educational, and to a large extent accidental.

The proportion of young and middle aged converts of a religious revival must always largely preponderate over those in more advanced life; first because they are more numerous; but secondly, and principally, because the material of their brain can be more readily influenced by educational proceedings—can have forms of structure impressed, which, with a certain indefinite proportion, will dominate in their characters through life.

The unpardonable sin spoken of in the Bible, may mean the possessors of brain matter no longer capable of modification in structural arrangement, by educational processes, religious, or otherwise; and they may well be said to be given over to "hardness of heart," if "hardness of heart" means insusceptibility to religious educational influences, or processes

The present race of Evangelists, as the professional leaders of religious revivals call themselves, in the greater attention they bestow on the young, give evidence that they have learned wisdom by experience and observation, which has its basis in immutable truth. Those more advanced in life, with religious forms of structure in brain matter, so to speak, passive, so far as active function is concerned, may, by religious revivals, have them brought out so prominently, as to become dominant of character the remainder of life.

An indefinite but not a large proportion of those in advanced life, may have brain matter which can have forms of structure developed in it by religious educational influences, so as to become dominant to the end of life.

Men or women having brain structures performing a single dominant function on any subject, religious, or otherwise, are called monomaniacs, or derisively, luny, a petite of lunatics. If in young, or middle life, other educational influences may modify their brain structures so as to diminish the dominant function. But, if far advanced in life, the probabilities of any such changes are much decreased though they occur as the result of the natural decline of brain organization, as the end of life is neared by advancing years.

It is not only possible, but highly probable, that these statements of peculiarities of character may be illustrated here this very evening, if the physiology and psychology of religious revivals, receives any discussion. We all have structures performing more or less dominant functions, myself among the number. For, as I conceive, the single dominant function of my own brain matter, is the study of organic life, more particularly of my kind, but in a wider sense of nature, organic and inorganic.

But my theme, in unison with my own dominant brain structures, is far too large to be discussed in the brief space of time to which a paper must necessarily be limited. I have tried to show you that religious revivals have a strictly physiological basis, as well as strictly psychological functional results.

I may sum up the whole matter as follows:

1st. That religious revivals are strictly educational processes.

2nd. That leaders and teachers, lay and clerical, perform a physiological function in impressing on the brain matter of their hearers, or converts, forms of organic structure, in the hope, and expectation, that they will perform dominant psychological religious functions during the remainder of the life of each convert.

3rd. That educational processes are supplemental processes to the original act, or acts of creation, in giving molecular arrangement to brain matter, which will perform functions more or less dominant.

4th. That these functional results are strictly psychological in that the structural arrangements of brain matter from which they proceed, do not perpetuate themselves, as the structures performing instinctive functions do, by transmission from parent to offspring.

5th. That religious revivals are, in their aims and purposes, beneficient, intended to, and are productive of man's highest good, here and hereafter.

In conclusion, let me remind you that nothing can be known of mind, only through structural forms of matter. That not alone the psychological results of "religious revivals," but that all psychological phenomena depend on organic forms of structure. That all discussion, no matter on what topic, or subject, religious, secular, or scientific, are simply the results of, or functions of, the molecular arrangement of the brain matter of the parties concerned. And that these structural forms of organic matter are the results of external conditions, i. e., educational influences. Poor Richard's saying, that "just as the twig is bent the tree is inclined," was a recognition of these truths. "Train up a child in the way he should go, and when he is old he will not depart from it," is another long ago recognition of them. From these, and so many similar proverbial truths, we again are brought face to face with the terrible truth, that "Evil communications corrupt good manners."

As each expression of opinion is the psychological function of the structural arrangements of the brain matter only, it is the imperative duty of each and all of us, to cultivate, first, last, and always, charity for all those whose organic brain structures evolve psychological functions differing from our own.

And it will be well when testing the "truth" of anything, to remember that when Pontius Pilate asked Jesus the direct question, "what is truth?" he received no reply. Has the question been answered since?

We, may not, as individuals, at all times be able to approve of all the means others use in the conduct of religious revivals. But if ever the ends aimed at justified the means used, it is surely so with them; seeing that their effects are to give to brain matter these structural forms which evolve functions calculated to elevate man to the highest plane of moral and intellectual life, and bring him into closer communion with the Creator.

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Art. 2.—Statistics of the Mortality in Cincinnati during the Year 1877, with Comparisons with that of other American Cities, etc., etc.

Being a Paper read before the Cincinnati Medical Society,

By THOMAS H. KEARNEY, M. D., Health Officer.

In presenting a few mortality statistics of this and other chief cities of the country, for the year past, I beg leave to premise with a few words in regard to the value and reliability of the figures I have at hand. While complete and accurate vital statistics, including of course those relating to the mortality, would be of extreme value, it is unfortunately true that as yet we do not possess them; as the statements from many places are manifestly inaccurate. For our own city, however, it may be claimed that the records of deaths are almost, if not absolutely, correct.

To afford data for a comparison of the death-rate in different places, besides complete death returns, the actual populations of such places must be known. Except Philadelphia, which took a census during the Centennial year, the present estimated populations of the other cities I shall name are derived from the figures of the United States Census of 1870, or in a few cases, from enumeration made by state authority and agency in 1875. It is much to be desired that all states, that have not already done so, shall provide for ascertaining their populations by a careful enumeration every ten years, between the years of the decennial censuses taken by the General Government; so as to afford this important information every five years. The estimated figures are generally open to the suspicion of being somewhat excessive, and sometimes very much so; for, as Dr. Johnson is reported to have said: "When numbers are guessed at they are sure to be magnified." The spirit of local pride and rivalry, with that sanguine disposition that may, in part, be the result of the contemplation of that rapid growth that has heretofore marked the progress of many of our American communities, all will be apt to tend to an overestimate of our proportions.

As relates to the population of Cincinnati, I may state the figures assumed to represent it, 280,000, are derived from the following facts, and to my mind are warranted by them: In 1870 the United States Census showed the population of the city to have been 216,236. In the spring of 1873 Cumminsville, Columbia and Woodburn were annexed, with a population, according to the report of the Health Officer for that year, of "nearly 7,000." Supposing the people living in the territory named to have numbered 6,500 at the time of the census, then the population of the present city must have been 222,736 in 1870. Assuming the number to have reached 280,000 at the middle of last year, the increase claimed during the intervening seven years was equivalent to 25.7 per cent.

A calculation of the proportionate increase, during the same period, in Philadelphia, Brooklyn, Chicago, Baltimore, Cleveland, and San Francisco, shows a larger percentage for them all, varying from 26.32 for Chicago to 100.7 for San Francisco; while in New York, Boston, and Providence the increase seems to have been less.

A few weeks ago, in an article in the *Cincinnati Commercial*, on the increase in population in cities and states, fifteen cities were named other than those mentioned, in which the increase in five years ranged from 30 to 150 per cent., and ten in which the rate for the same period of time fell below that of Cincinnati for seven years.

Again, the claim of 280,000 of population is borne out by the result of the school census in 1876, which gave a total between the ages of six and twenty, of 93,042. The youth between the ages given are said to constitute one-third of the total population. In view of these facts it would seem reasonable to assume the estimate made to be a fairly close approximation to the actual numbers. But if we are exaggerating our numbers, it would seem, at least, we are doing so in a less degree than other cities.

Our mortality during the year 1877 amounted to 4,428, which, on the foregoing basis, is in the proportion of 15.81 per 1,000 inhabitants. If, however, we include the deaths in the City Infirmary and Longview Asylum, numbering together 102, the rate would be 16.17. The number mentioned is 1,282 less than that for the year before, and the lowest of any year since 1870, when it amounted to 3,988. By quarters the deaths occurred as follows: In the first quarter there were 1,124, or 25.38 per cent.; in the second, 1,054, or 23.80 per cent.; in the third, 1,216, or 27.46 per cent.; and in the fourth, 1,034, or 23.35 per cent. The variations in the numbers of deaths from the various known causes, in 1877 as compared with those in 1876, were, by classes, as follows:

From the Zymotic diseases, a decline from 2017 to 1141 = 43.43 per cent.
" Constitutional " " " 976 " 922 = 5.58 "
" Local " " " 2027 " 1800 = 11.2 "
" Developmental " " 351 " 286 = 18.52 "
" Violence, an increase " 203 " 229 = 12.8 "

The chief causes of death in the year are given in Table 1, with the numbers of those who died from such causes in both years, '76 and '77, and the proportions they bear to the total mortality.

Table 2 shows the numbers of persons at all ages, and of children under five years, that died in tenement houses and private residences, respectively; and is worthy of consideration in so far as it indicates a higher mortality among young children in the former than the latter. Unfortunately, this very interesting point cannot be clearly brought out while the numbers of people living in each class of buildings is unknown. However, the much higher proportion the deaths of children bear to the total deaths in tenement houses than in private residences, seems to indicate a much greater mortality among the young living in the former than among those living in the latter class of buildings. This, it must be admitted, is simply surmise; for, on the other hand, the figures might be interpreted to signify a higher mortality-rate among those above five years of age occupying private houses than in the same class in tenement houses. For the percentage or proportion may be affected alike by plus in one column or minus in the other. The inference above mentioned, however, is the one that appears most natural.

Table 3 will be found of interest as showing the death-rate in different cities of the country. As will be seen New Orleans admits the highest death-rate and St. Louis claims the lowest. Striking differences in the rate in different cities will be observed—differences sometimes difficult to understand. For example, the rate in St. Louis varies considerably from that in Quincy, a city situated on the same river and in the same region. And yet in this case we have the lesser city showing a much higher death-rate than the greater one.

It is hard to avoid the suspicion that populations are sometimes exaggerated, or the actual numbers of deaths occurring are not reported, or perhaps in other instances a combination of both sources of error exists. Again, it is open to question whether the much higher death-rate in the Eastern, as compared with Western cities, is not more apparent than real; and may be explained as the result of greater accuracy in the registration of deaths in the older cities, whose health departments are more thoroughly organized than those of less experience. In them, also, it is probable the estimation of population are more nearly correct. The thirty-three cities named being arranged in the order of proportionate mortality, from lowest to highest, it will be found that Cincinnati occupies the ninth place from the head of the list, St. Louis being the only large city showing a smaller death-rate.

Combining the figures of population and mortality of various groups of cities, as in Table 4, and calculating the rates from those aggregates, results are obtained that may be regarded more reliable than those based on the figures of individual cities, because derived from larger numbers. The group of western cities shows the smallest death-rate from all causes, while the lakeshore cities give the highest rate from consumption. In this latter group the proportion of children under five years of age who died during the year was very great, in consequence, no doubt, of the prevalence in them to 'so great an extent of diphtheria, scarlet fever and small-pox.

The reader will of course have in mind the much larger proportion the colored race contribute to southern than northern populations, in contrasting the death-rates in southern with those in northern cities. And this fact, also, detracts from the value of the figures representing the proportionate mortality from consumption, as a data for comparison between southern and other cities in relation to this interesting point.

The mortality from diphtheria, scarlet fever and small-pox, in various cities, is exhibited in Tables 5, 6, and 7.

TABLE 1.

Number of deaths in Cincinnati, in the years 1876 and '77, from certain prominent causes:

Cause of Death.	*In 1877 Number.*	*Per Ct. in Tot. Mor.*	*In 1876. Number.*	*Per Ct. in Tot. Mor.*
1. Consumption	720	16.24	723	12.66
2. Diarrhœal Diseases.	483	10.91	463	8.11
3. Pneumonia and Congestion of Lungs	381	8.60	422	7.39
4. Convulsions	250	5.64	341	5.97
5. Accident and Negligence.	180	4.06	156	2.73
6. Heart Diseases	131	2.95	147	2.57
7. Meningitis	125	2.82	170	2.97
8. Diphtheria	120	2.77	92	1.61
9. Bronchitis	115	2.59	114	2.
10. Typhoid Fever	113	2.55	147	2.57
11. Apoplexy	105	2.37	56	.98
12. Inflammation and Congestion of Brain	98	2.21	149	2.61
13. Cancer	76	1.72	79	1.38
14. Diseases of Liver	71	1.60	64	1.12
15. Whooping Cough	68	1.53	76	1.33
16. Small Pox	56	1.26	929	16.27
17. Croup	45	1.02	53	.93
18. Bright's Disease	45	1.02	23	.4
19. Puerperal Fever, etc.	36	.81	24	.42
20. Scarlet Fever	29	.65	16	.28
21. Cerebro-Spinal Meningitis	18	.40	36	.63
22. Measles	8	.19	85	1.49

TABLE 2.

Deaths by months, as they occurred in tenement houses and private residences, respectively, with the percentage of decedents under five years of age in each class:

	In Tenement Houses.			*In Private Residences.*		
	Total Deaths.	*Deaths under 5 yrs. of age.*	*Percentage to Total Deaths.*	*Total Deaths.*	*Deaths under 5 yrs. of age.*	*Percentage to Total Deaths.*
January - - -	200	72	36.	111	28	25.23
February - - -	214	97	45.33	102	28	27.45
March - - -	224	92	41.07	106	27	25.47
April - - - -	189	103	54.49	99	32	32.32
May - - - -	189	81	42.85	90	21	23.33
June - - - -	262	135	51.52	90	39	43.33
July - - - -	286	182	63.63	121	62	51.24
August - - - -	267	159	59.55	112	47	41.96
September - - -	232	127	54.74	76	31	40.78
October - - - -	234	124	52.99	105	38	36.19
November - - -	208	86	41.34	98	29	29.60
December - - -	188	75	39.89	89	24	26.96
Totals - - -	2693	1333	49.49	1199	406	33.86

TABLE 3.

Death-rate in American cities from all causes, for the years 1876 and '77; from Consumption alone, and of children under five years of age, for 1877:

Groups	Cities.	*Rate per 1000 Inhabitants.*				*Special or Extraordinary Causes of Mortality. In 1877.*
		From All Causes.		*From Consum'n*	*Under five years.*	
		1877.	1876.			
Atlantic Coast.	Boston -	20.15	22.74	3.49	8.25	361 Dip. 104 Scr. f.
	Providence -	18.81	18.37	2.85	7.03	295 Diphtheria.
	New Haven	19.7	20.46	2.68	8.05	
	New York -	24.50	27.46	3.79	11.51	948 Dip. 976 Scr. f.
	Brooklyn -	21.52	24.3	3.	10.53	771 Dip. 715 Scr. f.
	Philadelphia	18.81	22.88		7.54	458 Dip. 372 Scr. f.
	Wilm'gton, Del.	18.85		3.75	8.12	
	Baltimore -	22.01	20.79	3.05	11.2	423 Dip. 441 Scr. f.
	Wash'ton & D C	25.64	26.54	3.81	11.6	175 Scarlet Fever.
Southern.	Richmond -	21.27	21.98	3.21	9.52	
	Savannah -	31.22	79.87	3.55	12.29	
	Selma - -	22.91		3.82	8.63	
	Mobile -	23.37		3.15	8.17	
	New Orleans -	32.97	29.8	4.36	10.35	
	Jack'ville, Fla.	21.1		4.5		
	Memphis -	25.		3.6	8.22	
	Nashville -	27.73	33.55	3.47	11.66	
	Knoxville -	13.96	12.92	2.94	4.9	
Middle Inland.	Rochester, NY.	15.74		1.81	6.15	
	Syracuse "	11.94		2.01	3.83	
	Reading, Pa.	22.01	24.68	2.19	10.97	
Western.	Pittsburg -	23.5		2.07	12.12	401 D. 269 S.P. 95 S
	Cincinnati	15.81	21.55	2.57	6.45	
	Dayton -	11.38	14.47	1.92	4.32	
	Indianapolis -	16.19		2.06	8.43	
	Quincy -	15.66		1.83	6.8	
	St. Louis -	11.32		1.37	4.78	
N. W. Lakeshore.	Cleveland	17.92	19.06	1.8	7.61	410 Diphtheria.
	Toledo -	14.3	13.58	1.5	6.08	
	Milwaukee -	16.93	20.79	1.54	10.11	271 S.P. 168 S. 99 D
	Chicago -	18.24	20.41	1.66	10.25	810 Scr. f. 333 Dip.
Pac. Coast.	San Francisco	18.33	20.61	2.12	6.73	794 Dip. 139 Sm.px.
	Oakland, Cal.	13.42		1.65	6.	

TABLE 4.

Deaths from all causes, from Consumption, and of children under five years of age in the different groups of cities, with the aggregate populations and rate per thousand inhabitants.

Groups of Cities.	*Population.*	*Deaths*	*Rate per 1000 Inhabitants.*	*From Consum'tn.*		*Under 5 Years.*	
				Deaths.	*Rate.*	*Deaths.*	*Rate.*
Atlantic Coast -	3,534,048	76,787	21.73	9,220*	3.44	34,701	9.82
Southern - -	456,499	12,730	27.89	1,752	3.84	4,373†	9.79
Middle Inland -	184,913	2,935	15.87	362	1.96	1,192	6.45
Western - -	1,081,110	15,830	14.64	2,015	1.86	7.063	6.53
N. W. Lakeshore -	774,953	13,726	17.71	1,288	1.66	7,309	9.43
Pacific Coast -	340,000	5,716	17.77	701	2.06	2,258	6.64

* Does not include the deaths in Philadelphia.

† " " " " " " Jacksonville.

TABLE 5.

Mortality from Diphtheria in 1877, in various American cities, with the proportion of deaths to each one thousand inhabitants, and the estimated population of each city.

Cities.	*Number of Deaths.*	*Proportion in each 1000 Inhabitants.*	*Estimated Population 1877.*	
Providence	295	2.87	103,000	
Pittsburg	401	2.77	145,000	
San Francisco	794	2.65	300,000	
Cleveland	410	2.52	162,000	
Brooklyn	771	1.41	527,830	
Baltimore	423	1.17	360,000	
New York	948	.88	1,077,228	
Milwaukee	99	.8	122,980	
Boston	361	1.	363,000	
Chicago	328	.75	439.976	
Philadelphia	458	.54	850,856	
Cincinnati	120	.43	280,000	
Syracuse	25	.41	59,804	
Richmond	22	.28	77,500	
Nashville	96		27,085	
Quincy	42	1.20	35,000	
St. Louis	175	.35	500,000	Estim'd from 40 w'kly reports.
Toledo	32		50,000	
New Haven	57	.95	60,000	Incomplete.
Washington	84	.52	160,000	
Memphis	11		50,000	
Dayton	10		37.000	
Mobile	5		40,000	
Knoxville.	1		13,250	
New Orleans	18		203,439	Estimated from partial reports.

TABLE 6.

Mortality from Scarlet Fever in 1877.

Cities.	*Number Deaths.*	*In 1000 Inhabitants.*	
Chicago	825	1.88	
Milwaukee	168	1.37	
Brooklyn	715	1.35	
Baltimore	441	1.22	
Washington	175	1.19	
New York	976	.906	
Pittsburg	95	.66	
Philadelphia	372	.44	
Richmond	26	.34	
Boston	104	.29	
New Haven	61		Incomplete.
St. Louis	29		"
Cincinnati	29		
San Francisco	25		
Syracuse	22		
Toledo	19		
Cleveland	14		
Providence	12		
Memphis	12		
Quincy	11		
Nashville	8		
Dayton	4		
Knoxville	1		

TABLE 7.

Mortality from Small-Pox in 1877, in various cities.

Cities.	*Number Deaths*	*Per 1000 Inhabitants.*	
Milwaukee -	271	2.2	
Pittsburg -	269	1.80	
New Orleans -	185	.91	Estimated on returns of 20 wks.
San Francisco	139	.46	
Philadelphia	155	.18	
Cincinnati -	56		
Chicago -	42		
Toledo - -	2		
Boston -	4		
New York -	14		
Brooklyn -	5		

The cities of Baltimore, Washington, Richmond, Mobile, Nashville, Memphis, Knoxville, St. Louis, Quincy, Dayton, Cleveland, Syracuse, New Haven, and Providence appear to have been exempt from this disease during the year.

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Art. 3.—Puerperal Fever.

Read before the Cincinnati Medical Society, March 26th, 1878.

By J. P. WALKER, M. D., Cincinnati, Ohio.

Mr. President: In presenting the subject of puerperal fever this evening, I do not propose to enlighten any one on the fearfulness of the disease, or to present anything new as to treatment. All forms of treatment at times prove unsatisfactory, and we feel that medication is useless; that the more we know of the disease the less we know of the appropriate medication. My object will be, if possible, to draw out a discussion, which shall be laden with the experience of Cincinnati physicians, treating *this fever in Cincinnati.* Our books are good for reference in the treatment of a given disease; but *our* needs are *practical facts* in this particular location. I may be considered a little enthusiastic over the *Mercurial* and *Opium* plan. My only apology is, that I have found it practically efficient. However unpopular calomel may be among the masses, and in estimation of many in the profession, I am willing to place myself on record as one who believes with the late Professor J. P. Harrison, "that there are diseases in which a little of the '*red lion*' is necessary." Child-bed fever is unmistakably one of this number.

I propose to give a few cases to illustrate the thoughts I wish to present.

CASE I.

At East Walnut Hills some fifteen years ago Mrs. ——, was found in her fifth confinement. I had attended at the birth of her four former children, with nothing of note in either case. This labor was rather more tedious, but natural. On the fourth day after delivery she was attacked with all the symptoms of malignant puerperal fever. The extension of pain and tenderness was very rapid; the distension of the abdomen becoming larger than before delivery. Erysipelatic inflammation extended from the vulva over the nates, and death took place on the seventh day of the fever. The erysipelatic nature of the disease was unmistakable, and lead me to the adoption of the muriate of iron treatment in the advanced stages of epidemic child-bed fever. There was no mitigation in this case except by opiates. Erysipelas was in the immediate neighborhood, though no known intercourse was had between the families.

CASE II.

In January, 1873, when puerperal fever was epidemic in Covington, Kentucky, I was called to attend Mrs. H——, and found her in labor with her second child. Her general health had been good, though suffering at times with obstinate leuchorrhœa. Her sickness was tedious, but natural. Forty-eight hours after the birth, she was seized with severe pain in the back and right illiac region, followed by a hard chill. I found her with hurried and difficult respiration, pulse 130, temperature high, and occasional vomiting.

The extension of pain and tenderness over the entire abdomen was rapid, and within 24 hours became very painfully distended by flatulency. After relieving her bowels with a mercurial purge, she was treated with calomel and opium till the gums became tender. The more prominent symptoms subsiding, she was given quinine and the muriated tincture of iron. Turpentine was applied externally, and ten drops given internally on sugar, occasionally. She made a good recovery. The infant suffered severely from purulent ophthalmia, rendering it uncertain for a time whether death would not claim the mother, while the child would be left to total blindness. Purulent ophthalmia is not an unusual accompaniment of epidemic child-bed fever.

CASE III.

January, 1877, was called to see Mrs. McG——. This was her first delivery and somewhat protracted; no interference however was necessary. In about 12 hours after her confinement, she complained of an aching in the back, which speedily extended over the entire abdomen. There was great tenderness on pressure, especially over the uterine region, and much flatulent distention. The bowels were constipated. In consequence of gastric irritability and vomiting, nothing could be retained but calomel, which was given in five grain doses, till thirty grains had been taken. The bowels were now freed by injections. I had in this instance salivation which was not very delightful, but a full compensation was received through the rapid and full recovery of my patient. After partial subsidence of fever she was treated with iron and quinine in moderate quantities; turpentine used externally and internally as in former patient. There were no other cases in the neighborhood to my knowledge.

I have fortunately been called on to treat but few of these grave cases in my own practice; having lost but three in about 2,300 deliveries. I early adopted the treatment of the schools of thirty years ago, and that practiced by my preceptor, the late Dr. W. Kilbourne, of Maine, except general bleeding, which I found not as well borne in the West as in the East. I have seen no reason to change, only as I have been convinced of the erysipelatic nature of many of these attacks, especially in the epidemic form. Statistics show no marked improvement in the treatment of childbed fever since, aside from improved hygienic knowledge. I believe my success has been in a great degree the result of prompt and early use of mercury and opium. In reviewing a practice of thirty years, the early part of which was devoted largely to obstetrics among a class more than ordinarily exposed to causes of disease, I feel confident that a great number of cases would have become serious, if not fatal, had not this course been adopted. This treatment should be commenced on the first indication of the disease, and not a *final resort*; thus giving the patient the advantage of our fears, if not positive of the case. The golden moments for treatment are within the first twenty-four hours. It is *reasonable* to suppose that a remedy so powerful in relieving the portal circulation, and prompt in exciting the excretory glands, to say nothing of its specific action in serous inflammation, would be very effective in controlling and removing the destructive process. Opium is also our great sheet-anchor for the relief of irritation. As one has well said "opium relieves irritation, which leads to inflammation, which leads to destruction and death; therefore give opium to relieve irritation." I know it is claimed by some that the action of mercury on the liver is only through its purgative qualities, and the same result would be produced by castor oil. It may not be reverential in me to say that this view indicates superficial study of the action of remedies, nevertheless I must be permitted to think so. Whether the affection arises from inflammation of the uterus and its appendages, or has its origin in septicemic poison, the action of mercury is equally, I think indicated. Many lives in this and other diseases are undoubtedly sacrificed yearly, through a *false* and *popular predjudice* to the use of calomel. It stands however, and ever will stand as one of our most potent remedial agents. The practice of giving large doses of quinine as recommended by some, and I think we have heard it advocated in this society, in disease where we already have a rapid pulse, high temperature, hurried and labored respiration, is, to say the least, questionable practice. Under the ordinary use of this drug, the pulse becomes fuller, stronger, and more frequent. This effect would not seem desirable where the patient has a pulse of 120 to 140, respiration 36 to 40, and a temperature of 104 to 106. That the frequency of the heart's action is lessened by a poisonous dose of quinine, would hardly warrant its use in disease in large quantities where the secretions are impaired, and a general state of excitement exists. It would flavor strongly of "Similia Similibus Curantur" on a large scale. Does not this effect depend on an influence on the nerve centres interfering with the due performance of their functions? The question might here be raised, whether remedies calculated to decrease the action of the heart are indicated in *any fever*, depending on blood poison? I do not however, propose to solve this problem at present.

CASE IV.—PUERPERAL ENDOCARDITIS.

February 14th, 1877, at 11. P. M., I was called to see Mrs. K——, in labor with her third child. I had attended her in the two former confinements. The labor was progressing favorably. Os partially dilated and dilatable. Pains not frequent or severe. At 6 o'clock next morning, 15th, the membranes ruptured and the breach presented. Her pains continued naturally, and in a little over one half hour was delivered with no interference, except gentle traction from the shoulders in the delivery of the head. One drachm of fluid extract of ergot was given to expedite delivery of the head and placenta. From the time of birth till 2 P. M. on the 17th, (55 hours) there was not an untoward symptom discoverable. At this time she was suddenly attacked with a severe chill, amounting to rigor; with violent pain in the left illiac region. The pain was slightly intermittent, indicating it to be uterine, but so frequent as to be almost continuous. She had taken oil in the morning, which had been repeated before I saw her at 5 o'clock P. M. I found her with burning heat of skin, temperature of at least 106. pulse 140, respiration hurried and labored. Hot applications and the use of chloral relieved the pain, and the next morning 18th, found her quite comfortable, and was lead to hope that the case would prove one of excessive milk fever. Oil had operated quite freely. Pulse 120, temperature lower, respiration less hurried, but still a feeling of oppression in the sub-sternal region. The lochia which had been checked the evening previous became natural, and milk secreted moderately. No pain, and no tenderness in the uterine region, and an entire absence of flatulency. At 3 o'clock, P. M., pulse 120. Slight improvement in respiration. The general indications seemed favorable until the evening of the 20th, at 8 o'clock, when I found her with constant belching of wind which was extremely distressing, and occasional vomiting, which had frequently occurred during the day. Pulse 130, frequent respiration and feeling of suffocation. Salycilic acid having been taken a short time previous to the belching, the patient and friends were impressed that the medicine was the cause. It was for the time discontinued, and bismuth and magnesia substituted for relief of gastric symptoms. Afterwards by suggestion of Dr. Carson, carbolic acid was combined with the bismuth. Vomiting mostly of green color.

Feb. 21st 8 o'clock A. M.—Mrs. K——, spent a restless night, pulse 120, respiration and temperature somewhat improved. Expression of countenance good. No pain, no tenderness, no flatulency. Bowels moved three times from five grs. of calomel given the evening previous. Vomiting and belching much relieved. Lochia natural, milk secretion normal, and infant put to the breast. Some tenderness of left wrist, with slight swelling. There seemed but little abatement of the septicemic condition, and desired counsel. Dr. Carson saw her with me at 3 o'clock, P. M. The following was her condition at this time as noted by my friend Dr. Carson:

"The most marked conditions were a sense of oppression which she located mostly in the lower sub-sternal region; occasional extra respiratory effort, frequency of pulse, 120 and above, heat of surface, swelling of wrist, flushed face, etc.

The physical examination of the heart gave a slight murmur, most distinct at the apex and synchronous with the first sound. An endocardial murmur.

No friction sound was heard. There was no abdominal fullness or tenderness. Lochial discharge was natural. The arthritical affection was almost entirely limited to the one joint though she had tenderness in the lower leg for a time.

The marked and interesting peculiarity of the case, is the condition so closely simulating articular rheumatism with endocarditis complicating it." The rheumatic condition of the left wrist extended to the shoulder, changing to the right in the same localities. The left leg below the knee was somewhat tender for a time. This complication seemed to be more benefitted by the external application of aconite than by salycilic acid. The acid undoubtedly aided in the relief, but not with the promptness usually accredited to it.

The pulse, temperature and respiration during the last six days were as follows:

21st—Pulse	120.	Respiration	36.	Temperature	99 3-5.
22nd— “	130.	“	42.	“	102.
23rd— “	130.	“	40.	“	102.
24th— “	124.	“	42.	“	100.
25th— “	140.	“	50.	“	104.
26th— “	145.	“	46.	“	102½.

She died on the 27th, at 5 o'clock A. M., ten days from the date of attack.

It will be noticed from the figures and the previous history, that the pulse from the beginning was never below 120. The temperature was found to exceed 104, but was on the average 102. The frequency of the respiration was very marked and labored from the commencement. The treatment was mostly of an antiseptic and sustaining nature, alternating quinia, opiates, bismuth, salycilic acid, digitalis, etc., to meet the more prominent symptoms. Salycilic acid had no observable influence on the circulation or temperature, but produced profuse diaphoresis, preceeded by increased flush of the face. This result was debilitating, and its discontinuance necessary, substituting quinine and digitalis. There was no tenderness or pain on pressure after the first twelve hours; though tympanitis became a very distressing symptom the last two days of life, with, as she remarked, slight stinging pains in the upper portion of the abdomen.

What could have been the cause of disease in this instance? Of the 20 or 30 presented by writers, not one could be applicable.

The nearest is the one which favors the humoral pathology, "to accumulation of noxious humors set in motion by labor." I learned during her sickness, that in the closing month of gestation she was easily fatigued, and sometimes suffered from shortness of breath. There was, however, no indication of heart trouble manifest till nearly three days after confinement.

In reviewing this case I can see no reason for changing the general course of treatment adopted, with the exception of that given the first 24 hours. I should under the same circumstances commence the treatment promptly with mercury and opium on the first indication of the disease. It should however be done if possible within the first twelve hours. I was in this instance somewhat thrown off my guard by the absence of pain and tenderness, and the free and natural lochial discharge. The secretion of milk was also normal. I have just returned from a case which I think will illustrate the above treatment. She was taken with a chill, pain in the back and abdomen, with general tenderness. The lochia had been offensive for two or three days previous. I found her with pulse 120. Temperature 103½, respiration hurried. I gave her at once calomel and morphine. This was 36 hours ago, and this evening her pulse is 96, temperature 100, and she is slightly salivated. Her convalescence is established. One peculiarity in the case is, that her child is three weeks old, and the symptoms of septicemic poison are very marked.

The character of this attack may be questioned, but the result of the treatment is a practical fact.

Art. 4.—Diaphragmatic Hernia.

By H. S. Boyd, M. D., Carrsville, Kentucky.

N. Hensley æt. 45. About the last of Oct., 1876, was stabbed in the left side between the sixth and seventh ribs, about four inches below and behind the nipple. Was called to see him with Dr. Clemments, a few minutes after it happened. We probed the wound enough to be certain it had penetrated the thoracic cavity. Had him placed with the left side down. There was considerable hemorrhage. He was kept very quiet four or five days, when he was removed to his home four miles distant. In three weeks he was able to come to town. I saw and prescribed for him frequently in the next twelve months. His health was not good though he was able most of the time to do the work of a farm hand. Complained very much of pain in his left shoulder ranging down through the precordial region to the epigastrium. A gurgling sound was discovered by auscultation and a clicking sound of the heart. There was also intermission of the pulse. In March, 1877, he had a severe attack simultating gastritis, with obstinate constipation which resisted for four days the usual means to remove it. When the bowels were freely opened, immediate relief was obtained. Nov. 10, 1877, worked hard all day digging potatoes, ate a hearty supper, soon after eating supper was taken with violent pain in the left shoulder extending down to the epigastrium, and incessant vomiting. Threw up everything as soon as swallowed. The bowels remained obstinately constipated and nothing gave even temporary relief except hypodermic injections of morphia. He died on the 18th. A post mortem examination was held, present, Dr. Thomas Linley and Dr. C. H. Linley, of Salem, Kentucky.

Rigor mortis well marked, body emaciated, no distension of the abdomen except a slight fullness at the epigastrium. On removing the sternum a large mahogony colored tumor which proved to be the fundus of the stomach, occupied and nearly filled the left side of the thorax, the heart being crowded over to the right side beyond the median line. The left lung greatly compressed and hepatized. The stomach or rather the strangulated portion above the diaphragm was distended with gas, but contained no fluid or other ingesta, a part of the omentum and transverse colon were also included in the hernial opening, which was about one and a half inches in diameter and presented a ragged border, and corresponded with a well marked cicatrice where the knife entered between the sixth and seventh ribs.

The parts embraced in the hernial opening appeared to be gangrenous, and recent adhesions of the bowels immediately below the seat of the stricture were noticed. The small intestines were empty and all the abdominal viscera except in the nigh neighborhood of the strangulation appeared to be healthy.

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Art. 5.—Singultus.

By FORDYCE GRINNELL, M. D.,

Physician to Wichita Agency, Indian Territory.

Clonic spasm of the diaphragm at times demands our study and care because of being continued to such an extent as to become a pathological condition.

Occasionally these spasms from frequent and long continued repetition, become exceedingly distressing. Such a case recently came under my observation. In this instance the hiccough was clearly traceable to miasmatic influences. The patient was an old man, of the Wichita tribe of Indians who was seized with intermittant fever while on a buffalo hunt some three months since. These attacks continued from time to time with occasional periods of seeming freedom from the disease. Finally the fever became a quotidian, and in course of time the singultus developed itself.

When I first saw the case the spasms were frequent and severe. One contraction of the muscles was followed so closely by another that no rest was given the patient.

With each spasm a forcible movement of the chest walls and intercostal muscles was produced. So violent were these movements that for a greater part of the 24 hours no food could be taken. Indeed little desire for it was manifested. I began the treatment by liberal doses of sulphate of quinine, 30 grains were given during the first day.

The night following quiet rest was obtained, the first for many nights, but the hiccough returned again with the day. Fifteen grains of the quinia were then given at a dose, repeated thrice during the day. Singultus ceased at night, and returned with much less vigor the following day.

On the 9th day of spasm and the 3rd of treatment, the patients symptoms were much improved he desired food and ate heartily. He was camped some ten miles from the agency, and I had requested that reports of the progress of the case should be brought in daily by the young men, as I did not see him every day. This duty they faithfully performed. The next report was that the patient had committed suicide. His friends said that he had asked for weapons and desired to do so several times before; stating that he was an old man, and had not long to live at best, and that he desired to see his three sons and one daughter, who had gone before to the spirit land.

Procuring a revolver he took his own life.

Like the old Roman's the Wichita's consider suicide an honorable mode of "shuffling off this mortal coil," and it is not infrequently resorted to by them in case of old age, disease or even disappointment.

Thus, unfortunately for the patient, and for our complete report, terminated the case. It however affords some points of interest, as being rather a rare form of malarial development.

The anti-periodic treatment would no doubt prove effectual in all such cases.

Art. 6.—Gun-Shot Wound of the Cranium.[*]

Read before the Marion County Medical Society.

By J. FETHERSTON, M. D., Indianapolis, Indiana.

On Thursday evening, September 20th, I visited John Petticord, a lad of about eighteen years, who had, in company with an elder brother, been out gunning with rifles during the day. After crossing Pleasant Run, a small stream that runs south of this city, and when ascending a hill, on which was a large tree with drooping branches hanging very low, the hammer of the gun which the elder brother was carrying caught on a branch of the tree causing the gun, which was being carried on the right shoulder, muzzle forward, to be discharged, the contents, *a ball of about forty-two grains weight* being lodged in the head of the subject of this report, who was in advance. It struck about one inch to the right of and below the occiput, and from one-quarter to one-half inch below the superior curved line.

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[*] Several physicians entered into the discussion of this paper, some taking the position that the death of the patient was not from the wound alone, or subsequent disease of the membrane or substance of the brain; the district in which he lived, a creek bottom; the time of year; the length of time elapsing between the seeming recovery from the wound and the first chill, (from the 9th to the 23rd); the rather sudden death after the second chill, which was upon the 25th—death upon the 26th; the non-appearance of characteristic symptoms of inflammation of the parts within the skull. All this they held as pointing to

When I saw him, from three to four hours subsequent to the injury, he was comatose and perfectly unconscious of his condition; pupils slightly dilated; pulse about 60, very weak and intermittent; skin cool and moist; with my finger as a probe, I found that the ball had penetrated the cranium. The case was diagnosed as fatal, an opiate given and dismissed for the time.

On the morrow, myself and Dr. Wagner, who had seen the case previous to me, visited him and found his condition unchanged. Directed cold applications to the head, nourishing diet, and the anodyne continued, seeing to it, that the wound was kept open in order to encourage the discharge of loose brain substance which was oozing out, also, any spicula of bone that might present.

From that time there was a slight improvement in his condition in all respects, until the morning of the 26th, when I observed a restless, nervous condition, with an occasional sighing, and an apparent ceaseless effort at swallowing. Ordered bowels opened with anema; saw that wound was clear, and directed them to summon me in the advent of any trouble.

About ten o'clock P. M. I was notified he was having spasms, when I called to my assistance Dr. J. K. Bigelow and Dr. Rice, of Lexington, Ky., who was visiting here. We arrived at the patient's residence at half past eleven o'clock; found him perfectly unconscious, and having had frequent epileptic spasms, as we inferred from pressure. He was placed under the influence of chloroform, when the trephine was applied by Dr. Bigelow. When about the third revolution of that instrument was being made a fragment of bone, measuring five-eighths by seven-eighths of an inch, and embracing, as we supposed the lateral sinus gave way, passing down and into the cavity of the cranium. Dr. B. quickly

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death from congestion consequent upon a malarial attack. Others were equally fixed in opinion that all these points could be reconciled with the course, symptoms, etc., of inflammation of the brain, and perhaps membrane, especially where as it is recorded that a quantity of puss issued from the opening made by the bullet. Among those the opinion prevailed that there had been an abscess in the substance of the cerebellum, but as no *post mortem* examination was made, the subject as usual, was left undecided. *Secretary Marion County Medical Society* laid aside the trephine, having already found quite an interesting condition, aside from that for which he was in pursuit; and dextrously passing his left index finger into the wound commenced to explore for the fountain and origin of a vast gush of venous blood, by carrying his finger forward and upward making pressure he was enabled to arrest the hemorrhage. A lead clamp was soon substituted for the finger, being held in position by a tampon, the boy was left with an unfavorable diagnosis to becloud his already gloomy horizen.

On the 27th I found him slightly improved, he having had no spasms during the night; intellect brighter; pulse full, soft and regular; fair appetite. He continued to improve, being better each succeeding day.

On the 30th I had Dr. B. to see him with me, with the view to removing the tampon and lead. But upon our arrival we found that we had been anticipated, the patient having become restless, complained of pain from the appliances, sent his nurse out on an errand and removed them himself, much to our gratification, as no hemorrhage had followed.

From that date we practiced conservative surgery, trusting a great deal to nature, which was very kind to us. For several days afterwards his general condition continued to improve; his intellect improved until he would converse intelligently; appetite good; tongue cleaned off; pulse from 75 to 80, and normal. During this time several spiculæ of bone were discharged, among which was the large piece that I described as giving away under the trephine. I also collected several small pieces of lead, the bullet having divided when it struck the skull, about one-half passing forwards and upwards from the point at which it struck, cutting a furrow, or groove about one-third of an inch wide in the external table of the skull, and lodging from one to one and a half inches from its entrance, the other half having taken a route that we were unable to explore, so that it was not found.

On October 9th he had a malarial attack, which was interrupted by quinine. He was then placed on a tonic and seen only occasionally, the wound having about healed, being closed by granulations and a fibrinous material.

On the 23rd I was again called, he having had another chill. When I saw him he was yet laboring under the cold stage. His fever rose to 105; he became delirious. Fever fell to 102 on the 24th.

On the 25th he had another chill; became delirious; pupils dilated; pulse full, strong, and frequent. Continued in this condition 'til his death—the 26th.

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Art. 7.—The Movo-Amobile Dressing for Fractures.—The Bavarian Plan.—It Must Supercede all Splints.

By W. W. DAWSON, M. D.;

Professor of Surgery, Medical College of Ohio; Surgeon to Good Samaritan Hospital.

A few weeks ago, in a lecture on "Plaster in Surgery," I called attention to the Bavarian Plan of treating fractures, and spoke in high praise of it. Since that publication, (*Clinic,* Nov. 10th), I have had a case which peculiarly illustrates this manner of applying plaster.

A little girl, thirteen years old, was brought into the Good Samaritan Hospital with an oblique fracture of the left femur, and near the ankle joint, a comminuted fracture of the tibia and a simple fracture of the fibula. The fracture of the femur was compound, one fragment being thrust through the posterior aspect of the thigh. Associated with the fractures near the ankle, there was great injury of the soft parts.

The girl was not received in the house until twenty-four hours after the accident, at which time there was great swelling of the foot, ankle, and leg up to the knee; not only great swelling, but the parts were livid; were what by-standers usually describe "as black as your hat." This dark color of the swelling showed extensive subcutaneous hemorrhage, and associated with great tension, the logical result of this condition seemed to be gangrene, and especially was this to be feared from the presence of another symptom, a low temperature of the part; to the touch it seemed cold.

What could be done with this oblique compound fracture of the femur? Extension was not to be entertained, the condition of the lower part of the limb prevented this. Neither adhesive strips, or the gaiter, could be applied over this badly damaged, well nigh devitalized ankle. Leaving the femur to take care of itself,' shortening daily, the ankle might have been treated by the bran box, or wire splint. With such plan, however, great deformity must have resulted. No advocate for the immovable appliance would have dared to enclose that ankle, and shut it out of sight by a permanent dressing of plaster, starch or dextrine.

The case seemed to be an admirable one for testing the movoamobile splint. Whilst I made extension upon the heel, my assistants, Drs. Bolan and Grill, and Mr. Coffman encased the limb. A fourth assistant pressed the fragments of the femur into position. At the end of twenty-four hours the splint was opened and I was gratified to find that the steady pressure of the plaster had greatly reduced the swelling and tension of the foot and ankle. At the end of forty-eight hours, and seventy-two hours after the receipt of the injury, a trap was made on the posterior part of the splint to correspond with the wound in the thigh. In a few days the damaged skin over the internal maleolus sloughed and here another trap had to be made.

From the wound in the thigh there has been a large amount of purulent discharge.

Now, at the end of nine weeks, union seems to be about complete, and there is scarcely a perceptible shortening.

Does not such a case as this settle the question of splints? Their name is legion; but must they not all go to the rear whilst one made with two strips of flannel and a few pounds of plaster comes to the front? If such a result can be obtained in an obliquely fractured thigh, with a still more severely injured leg, why think of, even for a simple case, of the long splint, the double inclined, the wire, the anterior wire, the long extending from the arm-pit to the heel, or short thigh with elastic extension. If shortening cannot occur when the limb is thus encased, why longer discuss the best plan of making extension and counter-extension? Most bad results have occurred from the inability of the surgeon to establish and maintain extension. The key note for the latter, counter-extension was struck, when, a few years, ago elevation of the foot of the bed was advised in oblique fracture of the thigh. The weight of the body was thus made to form a point of resistance; but how to keep up extension so as to prevent shortening, and be at the same time comfortable to the patient, is, with the profession, still an open question. Probably adhesive strips have given most satisfaction, but they do not always prevent deformity.

With the Bavarian Plan, shortening cannot occur.

It may be said, positively, that there is no difficulty in extending the limb to its normal length at the time of the accident; it can be done with but little force; hence shortening occurs in the subsequent progress of the case—the muscles almost imperceptibly get the advantage of the apparatus applied. When solidification has taken place the surgeon is humiliated in finding from a half to three and a half inches of deficit.

Now, if the fracture be reduced, and the movable-immovable dressing be applied to the limb whilst of normal length, the muscles cannot force the fragments upon and by each other so as to reduce the length. I would impress this fact upon the young surgeon, that it is not in the beginning when difficulty is encountered in extension, at that time but little exertion is required, but as before said, as the case advances the shortening occurs, when the dressing becomes disagreeable, or loose, or from inattention on the part of the surgeon or nurse.

The Bavarian fits the limb as exactly as the immovable; then it is the most easily moved and adjusted of any other kind of splint. It combines then in an eminent degree the virtues of both.

As said in the paper to which I have referred, the only objection to the immovable dressing was that it shut from view the seat of fracture. Had it not been for this it would long since have superceded all splints. The cautious surgeon cannot be satisfied with anything which prevents frequent inspection. Take the case which I am reporting. Would any judicious practitioner have been satisfied with a permanent inclosing of such an ankle?

The Bavarian dressing allows the patient the greatest freedom of motion in bed; he may rest upon his side when he tires of his back without danger of disturbing the fragments. The limb may be suspended if desired by a simple hammock—a sling of muslin placed under the leg and fastened above.

Another of the merits of this plan is well shown in a patient whom I am now treating. He entered the house with a compound fracture of the tibia and great contusion of the foot and ankle. The movo-amobile plan was adopted. In a few days it was apparent that the greatest injury had been done to the foot; violent inflammation soon set in and gangrene threatened. The bandage was cut away from the foot, allowing it freedom from restraint, whilst the part around the fracture was retained intact. The fragments were thus kept in position whilst I treated the sloughing foot. With any other apparatus the best position of the fracture would have had to be sacrificed, the limb have been freed from restraint, whilst attention was being given to the endangered part. The gangrene is now circumscribied, the inflammation is subsiding, and the swelling and tension in both leg and foot are gradually and surely becoming less and less every day.

Here was a case that could only have been treated with the fracture box, as the injury to the soft parts was severe, and as the fracture was an oblique one, deformity, if the limb should have been saved, would have been the legitimate, or at least the looked for result; for in the fracture box no extension can be maintained sufficient to prevent oblique fragments from over-lapping.

Let me give some reasons why this must supercede all other dressings for fractures, great or small, simple and comminuted:

1. If applied when the fracture is properly adjusted, shortening cannot occur. Reduce the fracture, place the limb in its normal position, apply the dressing, and deformity cannot follow. Short femurs must disappear and crooked limbs be no more seen in the land, to the disgrace and scandal of the profession.

2. It fits the limb as completely as the immovable.

3. It is the most movable; the most easily adjusted of all efficient appliances.

4. It gives the patient most comfort, by keeping the fragments positively at rest.

5. It allows the patient most freedom of movement, when in or out of bed.

6. It allows frequent inspection of the seat of fracture, without disturbing the fragments. It is properly the "movo-amobile" splint.

7. Like the immovable dressing, when faultlessly applied it presents undue swelling, and in this way promotes repair.

8. It hardens in a few minutes, (three), whilst it requires as all know from two to forty-eight hours for other forms of immovable dressing, such as starch, dextrine, flour and white of an egg, etc., etc. This one advantage can hardly be over estimated. The surgeon is not compelled, during the drying process, to trust his case to an assistant, or to binding the limb to a board, with either of which, the encasing is liable and likely to get deranged, and the fragments to become mal-adjusted.

9. For compound fracture, where drainage is necessary, traps are easily made in it.

10. Its cheapness, for dressing a fracture of the thigh, the expense would not reach one-half of one dollar.

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Art. 8.—A Short Study of Nineteen Cases of Abdominal Typhus.

By W. C. COLE, M. D., Attica, Indiana.

The study here presented includes nineteen cases of Typhoid Fever, observed during the fall of 1875, occurring in what with propriety may be termed a house epidemic.

The house, an old style, two-story brick, had but a few weeks previous undergone a complete cleaning, and painting, inside and out, of all its parts, excepting the cellar, which was damp, and contained a large quantity of vegetable matter in a state of decomposition.

It is bounded on the north by a prairie, or what we term a barren; on the east by a small grove, two hundred yards distant, at the edge of which a school house stands; on the south by a prairie, with a small stream of water running to the southwest, within a hundred yards distance; and on the west by a grove and family grave yard, probably half a mile off.

The well is eight or ten feet from the house, and the water as well as could be determined, pure.

Case.	*Date of Occurrence.*	*No. of Days Duration.*	*Sex.*	*Members of the Family.*	*Nurses.*	*Hired Help.*	*School Children.*
1	August 25	14	Female.				
2	Sept. 23	9	"				
3	" 25	55	Male.				
4	" 26	42	"				
5	Oct. 5	28	"				
6	" 13	64	Female.				
7	" 13	21	"				
8	" 15	18	"				
9	" 20	22	Male.	1	18	5	10
10	" 27	27	Female.	2	19	7	11
11	" 28	21	Male.	3		9	13
12	" 29	21	Female.	4			14
13	" 29	12	Male.	6			15
14	" 30	27	"	8			16
15	" 30	11	"	12			17
16	Nov. 2	11	Female.				
17	" 3	21	"				
18	" 6	28	"				
19	" 19	19	"				

	No. of days.	*Average.*
Members of the Family, - - - - -	224	32
Hired Help and Nurses, - - - - - -	112	22
School Children, - - - - - - -	139	19
Total Number of Days - - - - -	475	25

The Cases.

As will be seen from the table, the first case occurred August 25th, and continued fourteen days; the second case not occurring until September 23rd, nearly three weeks after; the third case in two days thereafter, and others occurring at intervals of from two to eight days, until the 17th of October, by which time nine members of the family, including three of the hired help, had been attacked.

On the 27th of October the first one of the school children was taken; and others, at intervals of from one to two days until the 3rd day of November, a period of seven days, by which time seven were attacked. November 6th, one of the nurses, a relative of the family, was taken, and on the 19th, the nineteenth and last case occurred.

Eleven of the cases were female and eight male.

The seven members of the family were sick 224 days, an aver- of 32 days each.

The five hired help and nurses, 112 days, an average of 22 days each.

The seven school children, 139 days, an average of 19 days each.

The total number of days, 475, an average of 25 days each.

Symptoms.

The prodromal stage was in some of the cases short; the chill rarely severe, and not long continued, in the greater number of cases scarcely perceptible, often coming on insiduously, and increasing gradually, so that it was almost impossible in a great majority of the cases, to fix the precise time of commencing.

In the majority of cases there was marked prostration during the first week, with headache and occasional dizziness, and some epistaxis, in but one of the cases, however, was this abundant; considerable thirst and loss of appetite; the typhus element predominating, as shown by the feeble and frequent pulse, the obvious sensorial disturbance, and the speedy prostration of strength; the petechia and hemorrhagic disposition.

In most of the cases there was diarrhœa; constipation being the rule in a few of the most protracted cases, continuing through all the stages of the disease. Slight bronchial disturbance present in a few of the cases.

The coating on the tongue was generally of a whitish color, changing after a few days to a brown, and by the end of the week becoming dry. In those cases where the enteric trouble was prominent, the centre was smooth and red, while the edges retained a whitish appearance. In those cases where constipation predominated, there was considerable engorgement and tenderness of the liver, and the tongue continued yellow throughout the entire course, or throwing this off only to renew it again.

The bowels generally puffed up during the first few days, becoming painful on pressure, and the gurgling in the illeocœcal region rarely ever absent, with marked enlargement of the spleen in all cases, and the characteristic rose-colored eruption over the epigastrium and adjoining portions of the abdomen. In some of the cases otherwise well marked, there was very little, if any tympany, and the eruption scarcely observable.

The temperature, which was closely studied, rising regularly in the manner, according to Wunderlich, almost pathognomic of abdominal typhus. "For instance, a patient having a temperature of 104 at six o'clock in the evening, will as a rule, have a temperature of 103 at seven o'clock on the next morning, and at five that evening a temperature of 105." The temperature decreasing in the same manner during the decline of the disease, which in a majority of cases occurred before or towards the end of the third week.

The pulse during the first week ranged from 90 to 100 or over, being accelerated by the movements of the patient. The double pulse spoken of by Niemeyer being present in a few of the cases; "due," as he says, "to a deficient activity of the contractile elements of the arterial walls, which are in a sub-paralytic state, as it is called."

During the first week the urine became highly colored, and remained so until the disease began to decline.

During the second week the pain complained of became less, but the dizziness and nervous symptoms increased, the expression more stupid, the intellect cloudy, and the patients generally fell into a comatose condition, from which they were not easily aroused. In some of the cases the patients were completely comatose, and so unconcious, as to pass their stools, and urine in the bed. As I have said, some of the patients continued constipated throughout the entire course; but in quite a majority of the cases the diarrhœa increased during the second week, three having hemorrhage, in one only, however, so copious as to cause anxiety.

The dejections had the color, as Niemeyer says, "of badly cooked pea soop in which the meal is not thoroughly mixed."

Dark sordes collected on the teeth early in the disease; the abdomen continued puffed and sensitive to pressure; the enlargement of the spleen increased; and the pulse ranged from 110 to 120, and 130 beats per minute, while the thermometer indicated an evening temperature of 106, without but slight morning remissions.

During the third week the debility increased, and the patients became very weak. The stupor increased to complete unconsciousness in case 4. Towards the close of this week the symptoms began to abate in cases 7, 9, 11, 12 and 17, and they entered upon a slow convalescence, indicating a tardy healing of the intestinal ulcers.

During the fourth week cases 5, 8, 10, 14 and 18 began to improve slowly, and by the end of that week had passed into convalescence.

Case 4, hypostatic congestions and hyperemia of the brain prolonged to the sixth week, when he began to improve slowly.

Cases 3 and 6 were typical of what may be termed irregular cases, which according to Wunderlich, "instead of following the regular type of typhoid, deviate from it." The causes of these irregularities cannot be recognized in every instance.

According to the same author, "the course of the disease shows two sharply-bounded, distinct periods, which correspond to the first and last half of the disease. In mild forms the first period lasts a week, or a week and a half. In severe cases the first period lasts two, three, or three and a half weeks, the entire disease lasting five, six, or occasionally, from eight to ten weeks, as did these two last mentioned cases.

Cases 1, 2, 8, 15, 16, and 19 were what may be termed abortive typhus, a name proposed by Lebert, and sanctioned by Niemeyer. In these cases the temperature ceased to rise. and began to fall from the ninth to the twelfth day, with decided morning remissions.

The treatment througout was symptomatic.

If at first visit constipation was found to be present, a mercurial cathartic was promptly given, followed in a few hours with an oil capsule, if necessary.

If diarrhœa was the rule an oil capsule was given, followed by tanic acid if the dejections were too frequent. Sponging the surface frequently, and the administration of digatalis during the febrile stage, and quinine during the remission. Warm fomentations and turpentine stupes to the abdomen, where there was much distension, and the administration of turpentine emulsion when the tongue remained dry, and the abdominal distension undiminished.

If the evacuations became too frequent, tanic acid was used, and the catheter, where paralysis of the bladder was present.

To relieve the nervous symptoms hydrate of chloral was given; and where coma existed, blistering the forehead was resorted to.

Cold water, or iced-water acidulated with lemon, or orange juice, was freely used.

Alimentation was held as of great importance, and nutritious food, in such quantities as would be digested and assimilated, were given. The supporting diet used in a liquid form, and concentrated as much as possible, very often assuming the oversight of the preparation of the food myself, for fear that it would not be palatable or nutritious.

Alcoholic stimulants were used but sparingly in a few of the cases, carbonate of ammonia being preferred.

Complete ventilation and cleanliness were always urged. In consequence of there being so many patients in one house, (three in one of the rooms), it was almost impossible to keep the air pure. Disinfectants were freely used and the evacuations instantly removed and covered with earth.

To prevent the extension of hypostasis the patients were prevented from lying constantly on their backs, by changing them from one position to the other. One of the patients, case 4, whose weight when taken sick was over three hundred pounds, required close attention in this matter.

During convalescence the patients were required to be closely watched, to guard against irregularities in diet, and the result was that all recovered.

To Dr. Rice, of Attica, I am under obligations for valuable and disinterested assistance in the treatment of some of the most protracted of these cases.

To my mind this epidemic was produced by a peculiar infection of the atmosphere about the house, caused by decomposing vegetable matter contained within the cellar, mingling with the malarial influences of the locality.

The malarial origin of this epidemic is rendered probable by the cases occurring in a district where no cases had occurred for years, and where there was no possible chance of contagion, and that no cases occurred after the 19th of November, when the weather became cool.

In regard to the seven school children who were attacked, there was but one sick in each of seven families of which they were members, and those only who came to the house for water. Of those who remained at the school house and drank the water, none were attacked.

That the disease was not contagious, is proven by the fact that in the seven different houses where the school children were sick no other cases occurred.

In a practice of many years in public and private, I can recall but one instance where this disease seemed to be communicated from the patient to others in the house.

In concluding the history of this epidemic, I will quote a few paragraphs on this subject from some of the authorities.

Dr. Murchison says that "although it is communicable, it is not so certain that it is contagious, in the strict sense of the term." He also says, "that out of one thousand cases of typhoid fever in the London Fever Hospital, there were but two that appeared to have originated in the hospital."

Niemeyer denies that the recent assertions that abdominal typhus spreads solely by contagion have been proven, but "that abdominal typhus occurs sporadically in so called house epidemics where quantities of animal, or vegetable matter are decomposing. The absorption of the germs appearing to take place chiefly through the lungs."

Austin Flint says: "Although this disease may be undoubtedly communicated in some way from the sick to the well, under ordinary circumstances it is not diffused by contagion."

Wood says: "That against the opinion of its ordinary contagiousness is the fact that it is constantly springing up in isolated cases without any possible communication, and that in such instances it is very seldom if ever communicated."

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Art. 9.—A New Treatment for Spine Diseases.

By MEIGS CASE, M. D., ONEONTA, N. Y.

The attention of the Profession has been directed for a few years past to a large class of neglected unfortunates, whose appeal to commiseration, is emphasized by their distressing and hapless condition and great numbers.

The institutions everywhere provided for the relief of invalidism in other forms, suggest a regret, that adequate provision has not been made for ameliorating the unspeakable wretchedness of patients afflicted with disease of the foundation frame-work of the body.

The dereliction of the profession in spine disease is shown by neglect of suitable early treatment in curable stages, and a tacit deference to the dicta of the instrument maker. In the latter, who, true to the instincts of a handicraft, has reproduced the time honored appliances, the steel crutches and metallic waist belt, springs, levers, pressure pads, and lacing, all restrictive of respiration and circulation, which have been used without any material change for half a century.

The most casual examination of any of these cases ought to satisfy the physician, that the attempt to correct the position of the spine by axillary crutches, can only produce increased deformity, and can never have originated with an anatomist. Attachments to the movable muscles of the shoulders, and appliances for pushing the spine into line by leverage on healthy parts cannot relieve the intervertebral cushion, the tendinous attachments, or the bodies of the vertebræ themselves from the injurious pressure of the superincubent weight by which alone cure, at any stage, is rendered possible. They are indeed liable to multiply the curves in persons already predisposed. Examination of the ordinary effects of curvature, on the system generally, shows arrested growth, atrophy, a peculiar sharpness of visage, coldness of the extremities, defective circulation and respiration, and other signs of impairment of function by pressure and limitation of the normal movements of the central organs of the thorax.

Death, when it occurs, is uniformly marked by cyanosis in its mode. It would therefore appear, that any treatment that operates by further restriction and diminution of the muscular movements of the chest, and the vital organs therein contained, can only be regarded as highly injurious and reprehensible.

The numerous accidents reported from more recent trials of absolutely immovable splints, such as paralysis of the lower limbs following the application of a gypsum belt, or sudden death when patients were believed by the medical attendant to be doing well, in papier mache or plaster, will enable others to decide whether the objections above recited, apply to them equally, or in a still greater degree.

It is proven, in numerous instances, that the bands are liable to become unendurably tight, and without premonition a fatal result is initiated which has not been prevented by the most prompt removal of the constriction.

If we add to the above, the ordinary objections, growing out of the character of the substance employed, the difficulty of adding weight to invalids already over-weighed, and the alarming fright, its application causes to most young children, we have valid reasons for the discontinuance of a practice, founded on a false theory, of essential fracture, and undeniably unnatural, inefficient, and dangerous. Believing that suspension at will possesses advantages over efforts to harvest mere fractions of the correction obtainable by its constant use, with immobile applications, destructive to normal action, of the organs and muscles of the chest, I have devoted considerable time to the production of a treatment free from the objections above enumerated, applicable, to all forms and stages of curvature, and so easily managed by the patient's themselves as to commend it to general use. An apparatus, employing rigid suspension which I first saw in Philadelphia in 1851, on a patient of the celebrated Dr. Mitchell, though correct in theory, and exhibiting excellent results, was unendurable for but a few minutes at a time. Having frequently demonstrated its value, in my own practice since 1860, and improved it by the substitution of elastic suspension, and the addition of wheels for locomotion. I now present after careful trials on cases representing every form of curvature, a complete apparatus which will not disappoint any reasonable expectations. It consists of a four wheeled machine with two upright spars and crossbar, from which depends a powerful steel spring, to which the chin and occiput are attached, by a suitable head-stall and whiffletree. The height is regulated by a screw, and can be raised, as tolerance is manifested in its use, and height increases.

In dorsal curvature we add a corset or waist suspension, so arranged, by thrusting the arms through large wood rings, as to prevent any lifting of the shoulders, or limitation of their movements in any direction.

The patient can turn around, and go backwards or forwards at will, and an agreeable change of position, is accomplished, by an adjustable seat. The enforced sitting posture, practiced ordinarily by patients handicapped by the usual appliances, becomes doubtless a factor in perpetuating the disease.

The failure to take needful exercise, effectually debars recovery by its injurious influence on the general health. In my apparatus, action in the suspension, is indispensable to its successful and continuous use.

In addition a double crank motion is provided for developing the chest, and affording exercise to the arms, in cases where disuse or paralysis of either side is observed. By attaching a pedal this can be used to exercise the lower extremities or, vice versa, when atrophy or paralysis is present.

In this manner, lifting the weight, placing the spine in a natural position, resting overstrained tendons, improving circulation in the spinal cord, we enforce muscular growth by use.

A manifest improvement in the respiration has been attributed in some cases, to diminished pressure on the pneumogastric outlets. Disappearance of headaches, sciatica and paralysis from its use, indicates manifestly their reflex origin in certain cases, and benefit derived from diminished pressure on the spinal cord, obtained by thus increasing the area of its bony canal. In this suspensory gymnasium, the most delicate patients are enabled to obtain without injury or appreciable restraint, all the benefits of muscular exertion in conformity with every well known maxim of health, and without the demoralizing influence on mind and body of appliances fastened to the person. The cripple becomes a gymnast. I subjoin a few illustrative cases:

CASE I.

Dorsal Potts disease, of four years standing. J. B., aged six years, Albany, N. Y., applied July 10th, 1877, with an angular posterior projection involving the upper dorsal vertebra, has suffered from the disease since he was two years of age, but has failed greatly during the past year, rarely leaving his couch, walks with his hands on his knees, is sleepless, and peevish, emaciated and cyanotic to the last degree.

He was placed in the apparatus and at once began an out-door life, he was not again seen until the 14th of August, at this time he had wholly regained his general health the deformity was much lessened, his weight and muscle perceptibly improved and his height increased by three inches. He still continues the use of the apparatus in which he spends most of his time, the curvature is gradually disappearing, general health remains perfect, and he may be seen daily "riding down hill" in suspension, which is accomplished by starting the machine on a declivity throwing his entire weight on the chin and occiput by lifting his legs and rapidly whirling round and round. He walks and runs continually and spends the entire day in the apparatus with an occasional respite.

CASE II.

Rotary lateral curvature of eleven years standing. N. P. aged sixteen years, Worcester, N. Y. This was a case of extraordinary deformity involving the greater part of the spine, in which the usual steel crutch and pressure apparatus had been carefully but unsuccessfully tried and finally abandoned by reason of its discomfort, his pulse was rapid, respiration hurried, and arms atrophied, the shoulder-blades over-lapped and the right shoulder rounded in the manner usual in such cases.

He suffered constantly from sick headaches and a constant indefinable sensation of discomfort in the spine which was greatly increased by exercise. His head and hips were thrown out of line, one leg was apparently longer than the other and his gait one-sided.

He was placed in the suspension with a passive motion apparatus attached, and continued its use five months, a days work consisting usually of five to eight hours. At the expiration of this period, during which he had no headache and improved in every way in general health, he was found to have gained permanently four inches in height and was able to endure ordinary exercise without notably increasing the action of the heart or lungs. His appetite notably increased and a corresponding improvement in his weight was observed. He now at the expiration of more than a year continues the daily use of the gymnasium, and reports a regular improvement in the curvature.

CASE III.

Angular curvature at the cervical-dorsal junction—traumatism—paralysis. Recovery. G. B., aged five years, first seen in February, 1874. He was lying on a lounge with a countenance expressive of great physical suffering. A curvature was seen at the point above named below which complete anaesthesia and paralysis had existed for nearly a year. Two years before he was thrown backward from a high chair and received a blow on the seventh cervical vertebra, which was followed by a severe illness and ultimate partial recovery.

He soon began to support the weight of the chin on the hand and became incapable of managing his head. Gradually this increased until complete paralysis of all points below that of injury supervened. Recognizing that the gradual production of paralysis in this case must have occurred by mechanical pressure, I advised suspension as the only practicable suggestion for treatment, but as this cannot be endured without motion, provided a novel addition to the usual apparatus, which overcame this difficulty and permitted its use. It consisted of a box containing a combination of levers and a spring somewhat resembling the interior arrangement of a scale to which a seat was secured. This machine communicated a churning motion to the seat which took the place of walking exercise as furnished by the ordinary apparatus.

Thus the indispensible conditions, of suspension and motion were furnished and followed by the most gratifying improvement in the general health of the little patient. The back of the seat with spring suspension attached was first let down and secured. The boy was then placed horizontally on the plane and his head hooked on to the headstall and spring. He was thus raised without pain to a sitting posture the feet were kept in motion by the action of the seat, hypodermic injections of 1-30 gr. of strychnine were used two or three times per week. Slight improvement in the position of the dropped wrist was soon observed with increasing warmth and circulation, which was followed at the end of three months by complete restoration of the hands.

The treatment was continued without material change until the expiration of five months from its beginning, when I was summoned in haste by the mother, to express my opinion in regard to certain alarming movements of the legs. My gratification and astonishment was complete, when I found that my little patient had instantaneously recovered the use of his legs and was moving them in a paroxysm of joyful emotion.

He was at once placed in the walking machine and began going about the house and out of doors, and at the expiration of a year had fully recovered. An abscess in the neck near the site of the injury gave rise to some serious apprehensions at one time, but with this exception his improvement was continuous from the day he was placed under my charge.

He has now been considered well for over three years, goes to school, plays as hard as any child, and his history altogether forms the most remarkable recovery, which has fallen under my observation.

CASE IV.

Incomplete paralysis. Recovery. C. B. Schenevus, N. Y., aged 9 years was presented July 20th., 1876, with general incomplete paralysis, which was exhibited by incoördinate movements, aphonia and ptosis, which had existed for about nine weeks, following recovery from well marked cerebro-spinal disease.

He was brought from his home on a pillow and was unable to to sit up or sustain the weight of the head. He was at once, but not without difficulty placed in the walking apparatus, but was unable to use it, but a few minutes at a time. Improvement followed and at the end of the first week, he remained in it the greater portion of the time and in three weeks walked several miles a day. At the end of eleven weeks all trace of the disability had disappeared and the apparatus was discontinued.

CASE V.

R. D.. age 55. Had suffered from double lateral curvature, for 25 years. She exhibited a loss of height of about five inches, and suffered from general atrophy resembling marasmus, and was subject to constant dyspnœa. Four weeks use of the apparatus, increased her height three inches, enabled her to rest, and wholly relieved the sense of impending suffocation.

CASE VI.

G. P., aged 23 years. Was thrown from a carriage three years previously, and received the blow on the upper dorsal vertebra. An interior curvature resulted, involving the four upper dorsal vertebræ, paralysis of the extremities existed from the first, but gradual use of the arms returned at the end of the first year. Use of the apparatus enabled him to stand or move about with comparative ease, increased warmth of the limbs and unmistakable signs of improved circulation, were noticed at its first application. A gradual improvement is now taking place in all respects, which promises ultimate recovery.

CASE VII.

Anterior curvature and spinal irritation. N. H., aged 20 years. This lady was thrown backwards from a horse nine years previously. Since then she has spent the greater portion of her time in bed, complains of a splitting pain in the back, which is aggravated by any attempt to exercise.

A decided strut was the principle mark of anterior lumbar curvature, but I regarded the case principally as one of spinal irritation a difficulty of which very little is said or understood. She had fairly taken her place among the "unaccountables," who become bed-ridden after exhausting the pharmacopœa. Nine years' trial of all the pathies had not improved or materially changed her situation.

She was placed in suspension by chin and waist, found complete rest and relief from pain and was immediately able to keep about an entire day, by taking an occasional rest in the apparatus. After three months use she is substantially improved, walks and rides without any pain or weariness, which is not relieved by the machine, which she continually uses and denominates her "haven of rest."

In conclusion I will add that the above are selected from a list of about seventy-five cases, mostly ordinary curvatures, in which the most favorable results have been obtained.

Its use in acute injury is also unquestionably indicated, as a rational treatment of the not unfrequent cases of traumatism, the broken necks and backs, that are apt to linger a few weeks, and die from intra-spinous pressure.

I have found the treatment useful in many chronic cases of incurable curvature, obtaining increase of height and a degree of comfort otherwise unattainable.

Elastic suspension in combination with exercise affords the true solution of the problem of "rest for the spine," in patients suffering from curvature or the injurious effects of mechanical pressure, on the medulla spinalis.

◆

Selection.

Pre-Christian Dispensaries and Hospitals.*

[From the Westminister Review].

Few movements of recent times have acquired more popularity than the "Saturday" and "Sunday" Hospital Fund. The terrible fact of pain and suffering appeals to our common humanity, and awakens the deepest feelings of sympathy in the hearts of rich and poor alike: "*Non ignara mali miseris succurrere disco.*"

The movement has called forth some inquiry as to the origin of hospitals, and Jews and Christians both contend for the honor of having given the first hospital to mankind. The impression that hospitals are a Christian innovation is much more widely spread than persons competent to judge of its legitimacy might suppose. Canon Farrar, in a "Life of Christ" which has acquired some popularity, says: "Amidst all the boasted civilization of antiquity there existed no hospitals, no penitentiaries, no asylums." Professor Lightfoot stated, at the opening of a hospital last year, that hospitals were "a creation of Christianity." It may, therefore, be of some interest to trace the history of the rise of hospitals in the nations of antiquity; and to show that they have not been confined to any age or nation, and that they are the natural outcome of that tender compassion for suffering humanity which is characteristic of all civilizations and of every cultured religion.

The hospital is simply the development of the dispensary, which is a necessary requirement of the medical officer appointed and paid by the State for the relief of the sick poor. Some room is required by the medical officer in which to see his patients and dispense the drugs, and this room naturally developed into the hospital ward, where the patients could be continuously under his eye, and be more carefully attended than in their own homes. It is therefore in the medical officer appointed and paid by the State that we are to find the earliest germ and first idea of the vast network of hospitals which has spread over the civilized countries of the world.

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* 1. *Melanges Egyptologiques: La Medecine des Anciens Egyptiens.* Par F. CHABAS. Chalon-sur Saone. 1862.

2. *Œuvres d' Hippocrate: Introduction.* Par E. LITTLE. Paris 1849.

3. *Travels of Fa-Hian from China to India.* By S. BEAL. London: Trubner & Co. 1869.

4. *Voyages des Pelerins Buddhistes.* Par STANISLAS JULIEN. Paris. 1853.

5. *Histoire des Medecine Juifs Anciens et Modernes.* Par E. CARMOLY. Bruxelles. 1844.

6. *Darstellungen aus der Sittengeschichte Roms in der zeit von August bis zum Ausgang der Antonine.* Von L. FRIEDLANDER. Leipzig: 1869.

These medical officers were an institution in Egypt from a remote antiquity, for in the eleventh century B. C. there was a college of physicians in the receipt of public pay, and regulated by law as to the nature and extent of their practice. At Athens, in the fifth century B. C., there were physicians elected and paid by the citizens; there were also dispensaries in which they received their patients, and we find mention made of one hospital. In the fourth century B. C. an edict was promulgated in India by King Asoka commanding the establishment of hospitals throughout his dominions; and we have direct proof that these hospitals were flourishing in the fifth and in the seventh centuries A. D. There was probaly a leper-house outside the walls of Jerusalem; and medical officers were attached in early times to the temple, and in latter times to the synagogues Among the Romans under the empire, physicians were elected in every city in proportion to the number of inhabitants, and they received a salary from the public treasury. And the ancient Mexicans had hospitals in the principal cities "for the cure of the sick, and the permanent refuge of disabled soldiers." Army surgeons are of very remote antiquity, for we read of them in Homer; and they won the admiration of Plato, because "they were heroes as well as physicians;" but there is no notice of the military hospital before the reign of Hadrian. Hospitals exclusively for the treatment of the insane are of comparatively modern growth, and are first found among the Mohammedans; they afterwards spread among Christian countries, *the earliest being found in Spain, the country most influenced by Mohammedan thought.**

It was around the temples that the early medical schools centred, for it was natural to regard the "divine art of healing" as a gift of the gods.[*] It is Brahma who writes the Ayur-Veda, the science of life; it is Æsculapius who appears in human form at Epidaurus and extends his saving right hand over all the earth to heal the souls that are in error and the bodies that are diseased;[†] and Prometheus in the midst of his sufferings declares that he has gifted mankind with the true science of medicine.[‡] The priests were the first physicians; and on the walls of the temples of Egypt and of Greece were suspended the observations and the votive tablets of the cures they effected. These tablets are very curious, because they are a strange medley of rational medical treatment with the superstition of charms and incantations; and they are most important, because they not unfrequently enable us to trace the rise of scepticism in the charm and incantation, and the struggle between the waning power of the priest and the increasing skill of the physician.

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* *Desmaisons Des Asiles d' Alienes en Espagne*, Paris, 1859 W. E. H. Lecky, Hist. of European Morals, ii. 85 *sq.*

The Babylonians and Assyrians alone, among the great nations of antiquity, had no physicians. The sick man was laid on a couch in the public square, and the passers-by were required to ask him the nature of the disease, so that if they or any of their acquaintance had been similarly afflicted, they might advise him as to the remedies he should adopt.[§] This custom commended itself to Herodotus, who thought it almost as wise as their other custom of selling the girls of the village in marriage, so that the "fairer maidens portioned off the plainer." As a consequence, incantations to drive out the evil spirit of disease were in much request, and the nature of their operation may be gathered from the following tablet:—

"God shall stand by his bedside; those seven evil spirits he shall root out and expel from his body; those seven evil spirits shall never return to the sick man."[||]

(1). Egypt claimed the invention of medicine.[¶] This claim is partially recognized in Homer, when Polydamna gives medicinal herbs to Helen in Egypt, "a country producing an infinite number of drugs, and where the physician possesses knowledge above all other men;"[**] and is fully endorsed by M. Chabas after a careful comparison of the medical papyrus at Berlin with the best medical works of Greece and Rome.[*]

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[*] Cicero, Tusc. Dis., iii. 1. Pliny, Nat. Hist., xxix. 1.

[†] Emp. Julian contr. Christ.

[‡] Æsch., Prometheus 476 sq.

[§] Herod i. 197, iii. 129. Strabo, xvi, c. 1.

[||] H. F. Talbot, Assyrian Talismans and Exorcisms. Cf. St. Matthews, xii. 45.

[¶] Pliny, Nat. Hist., vii. 56.

[**] Od. iv. 229.

The extreme antiquity of medical science in Egypt may be inferred from the fact that the medical papyrus at Berlin, fourteenth century B. C., contains the copy of a treatise on inflammation (*ouchet*) which was found "written in *ancient* writing, rolled up in a coffer under the feet of an Anubis in the town of Sokhem (Letopolis), in the time of his sacred Majesty Thot the Righteous. After his death it was handed on to King Snat on account of its importance. It was then restored to its place under the feet of the statue, and sealed up by the sacred scribe and wise chief of the physicians."[†]

Medical science attained so high a degree of perfection in Egypt, that there were specialists in the different branches of the art, and the physician was only allowed to practise in his own branch. There were oculists and dentists, those who treated mental disorders, and those who investigated obscure disease—[‡] There are medical papyri which treat of these several diseases. In the Hermaic books a whole chapter is devoted to diseases of the eye, and mummies have been found in Thebes with their teeth stopped in gold.[§] Athothos, son and successor to Menes, the first king of Egypt, wrote a book on anatomy.[||] The medical papyrus at Berlin contains a treatise on midwifery, and not less than one-hundred and seventy prescriptions for the cure of diseases, of which the diagnosis is carefully recorded.[¶] In these treatises diseases are regarded as enemies, not simply to be cured, but to be attacked, destroyed, driven forth;[**] a vestige, apparently, of the ancient superstition that diseases were devils which possessed the patient.

To guard the people against quacks and the rash experiments of young doctors, the Egyptian physicians were required to follow the rules laid down in the medical treatise preserved in the principal temple of each city; the idea being that the old must be better than the new.[*] Aristotle, however, says that they were allowed to altar the orthodox treatment; yet if they did so, it was at their peril, as their own lives were forfeit for the life of the patient.[†] This rule, when followed, secured the physicians of Egypt from the accusation which Pliny brings against the profession in his day: "It is at the expense of our perils that they learn, and they experimentalize by putting us to death. The physician is the only person allowed to kill with impunity, the blame being thrown on the sick man who is dead and gone."[‡]

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[*] *Melanges Egypt., La Medecine des Anciens Egyptiens.*

[†] Ibid.

[‡] Herod, ii. 84. See Sir G. Wilkinson's valuable note; also Ancient Egyptians, iii. 388—397.

[§] A skeleton was found at Quito with false teeth secured with gold wire.—Bollaert, Antiquities of N. Granada, p. 85.

[||] Manetho, quoted in Brugsch, *Histoire d' Egypte.*

[¶] Translated by Brugsch, *Notice raisonne d' un Traite medical datant du XIV me Siecle avant notre ere*; and Chabas, *Melanges Egypt.*, i.

[**] Chabas i. 79.

In Egypt, about the eleventh century B. C., there was a college of physicians, who[§] seem to have belonged to the sacerdotal caste, as did also the embalmers who are styled "physicians" in Genesis. They were not confined to one sex; the sculptures confirm Exodus i. 15 that women practised medicine.

The physicians were the paid officers of the State, and we may therefore conclude that they were required to treat the poor gratuitously;[||] and as they were not likely to attend the sick in their own houses, except in extreme cases, we may further assume that, as in the case of Athens, there were official houses to which the sick poor repaired at fixed times, which correspond to our medical dispensaries. Although paid by the State, they were allowed to receive fees.[¶] This care for the sick poor is a trait of character we might naturally expect from a people on whose sarcophagi we meet with inscriptions which tell how the deceased "succored the afflicted, gave bread to the hungry, drink to the thirsty, clothes to the naked, shelter to the outcast; that he opened his doors to the stranger, and was a father to the afflicted."

In the time of Herodotus "every place in Egypt was full of doctors," whence Pliny concluded that no country was so unhealthy; yet Herodotus says that few countries were so salubrious which he attributes to the uniformity of the climate.[**]

Although the older papyri show that the medical treatment of disease was rational, *post mortems* even being made to discover the source of disease,[††] yet charms and incantations were made and by no means excluded; and dreams were granted to devout souls who had consulted physicians in vain, and the votive offerings of arms, ears, eyes, etc., which still adorn the ancient temples,* show how readily the superstitious element found its place in Egypt, as it afterwards did in Greece and Rome,† and as it does to this day in many European Christian countries.

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[*] Diod. Sic, i. 82.

[†] Pol., iii. 11.

[‡] Nat. Hist., xxix. 1.

[§] Brugsch, *Hist. d' Egypte*, c. x.

[||] Sir G. Wilkinson in Herod, *loc. cit*

[¶] Diod., i. 82.

[**] Herod., ii. 84.

[††] Pliny, xix. 5.

There is a curious inscription in the temple of the god Chonson at Thebes, which points to a struggle between reason and faith, between, the skill of the physician and the prayer of the priest. Ramses XII. summons before him the "scribe of the houses of life." and orders him to select one who shall be "a man of an intelligent heart and skillful fingers," that he may be sent to cure the young princess of Bouchten. She is the "little sister" of the royal wife, and bears the Semitic name, Bentrash. The physician fails to cure the damsel, for she is possessed with an evil spirit. Then the god Chonson is sent from Thebes to Bouchten in a great barge, escorted by five smaller barges on the river, and by nobles, with the god's chariot and horses, along the banks. When the god arrives, he communicates to the princess "his virtue of life," and the evil spirit comes forth.‡ We, unfortunately, only possess the priests' version of the story; but it points to a rivalry between the rational science of the physicians and the superstitious faith of the priests.

The fame of the medicine of Egypt spread to all lands. Cyrus the Persian hears of it, and sends to King Amasis of Egypt for an oculist.§ Darius the Great had at his court "certain Egyptian physicians, whom he reckoned the best-skilled physicians in the world."‖ The Hebrew prophet Jeremiah says: "O virgin daughter of Egypt, in vain shalt thou use many medicines; thou shalt not be cured."¶ It lasted until the time of the Antonines, so that Galen, the "wonder-worker," thought it no small gain to have studied in the schools of Alexandria;** and it is preserved to our own day, wrapped up like one of its own mummies, in the words *chemistry*, *alchemy*, which tell us that the cradle of medical science was the land of the great god Chemmis, who had given to Egypt its ancient name, Chemi.††

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* Wilkinson gives some of these *ex votos* in vol. iii., p. 395.

† Friedlander, iv. 239

‡ Brugsch. *Hist. d'Egypte.*, c. ix., Berlin, 1859.

§ Herod., iii. 1.

‖ Herod., iii. 131, 132.

¶ Jer. xlvi. 11.

** Friedlander, lib. ii, c. 4.

†† Chabas, Papyrus Hierogl., p 55. For some time in England there were two ill-omened days in each month called "Egyptian days," supposed to be prescribed by the Egyptians as unwholesome for bleeding (Dean Stanley's Westminister Abbey, p. 53, n.).

(2). A story told by Herodotus of the Egyptian physicians at the court of Darius will serve to carry us from the school of Egypt to the schools of Greece. One day,* when mounting his horse, Darius sprained his foot. The Egyptian physicians thought it was a dislocation, and put the king to such pain by the violence of their treatment, that for seven days and seven nights his sleep went from him. On the eighth day some of the courtiers told him of a Greek prisoner among the slaves of Oroetes, named Democedes who came from the famous medical school of Crotona. In such haste was Democedes summoned into the king's presence, that he appeared "just as he was, clanking his fetters and wearing his rags." He reversed the treatment of the Egyptians, and cured the king. From that day no one stood so high in the favor of Darius as Democedes. He also cured of a sore in the breast Atossa, daughter of Cyrus and wife to Darius, and she rewarded him by aiding him to make his escape to Greece; whence he returned to Crotona, and married the daughter of his fellow-townsman, Milo the Wrestler, who had carried off the prize six times at the Olympic and seven times at the Pythian games (sixth century B. C.). Crotona was celebrated quite as much for her athletes as for her physicians; indeed, it was a proverb that the last among the wrestlers of Crotona were the first among the other Greeks.† This is a point of extreme interest; the same place that produced the best trainer of athletes would naturally produce the best physician,‡ because the healthy condition of the man's body was the aim of both; and as the trainer would soon learn not to trust in charms and incantations as preparations for the games, so would the physician learn to distrust charms, and to strive after a rational system of medicine. The physicians of Crotona would have agreed with Plato that the art of the physician was to cure the sickness and the wounds of men of good constitutions only, and to leave the weak and sickly to their fate; and applaud him when he quoted the tradition that Asclepius had been struck by lightning because he so far forgot the sacred obligations of his art as to allow himself to be bribed to heal a rich man who was at the point of death. Indeed Plato complained of what we call "our present system of medicine" as being calculated to "educate diseases," and as opposed to the old practice of the guild of Asclepius. He lays the blame at the door of Herodicus, a trainer who had a sickly constitution: "He, by a happy combination of training and doctoring, found out the way of torturing, first and principally himself, and secondly the rest of the world, by the invention of a lingering death."* Plato might laugh at Herodicus, nevertheless he was the master of Hippocrates, the "Father of Medicine"—fifth century B. C.

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* Herod., iii. 131.

† Strabo., vi. 1. 13.

‡ Aristotle in Grote's History of Greece, iii. 42–44, ed. 1862. *Œuvres d'Hippocrate,* Introd. pp. 22, 23, Littre.

All medical science before the time of Hippocrates was, says Pliny, "lost in the densest night; he was the first to compile a a code of medical precepts," † derived partly from the traditions of the family of the Asclepiadæ to which he belonged, ‡ and partly from the study of the votive tablets in the great temple at Cos. § Dion Cassius says that Democedes of Crotona and Hippocrates of Cos were the two most distinguished physicians of antiquity. ‖ Galen tells us that the Asclepiadæ founded the three great medical schools of Rhodes, Cnidos, and Cos. These were Doric settlements, ¶ and we find that their influence survived as late as the fifth century B. C. by the use of the Doric dialect both in medical conversation and prescriptions, ** and also in the prose oracles given at Delphi, which were so largely consulted by the sick. ††

At Athens, in the time of Plato, we find that some of the physicians were elected by the people and paid from the public treasury. Socrates, for instance, speaks of one "desiring to obtain a medical appointment from the government" ‡‡ and there was a technical term applied especially to physicians who practice with a public salary. §§ These State physicians, after they had been elected in the *Ecclesia* or other assembly, ‖‖ appear to have appointed slave doctors under them to attend on the poor, while they attended on the rich, and either by their own or the eloquence of some friendly rhetorician ¶¶ persuaded the patient to drink the medicine or to submit to the knife and the hot iron. Indeed this system of *persuasion* as a part of the medical art became at last ridiculous: "Foolish fellow! you are not healing the sick man, you are educating him; and he does not want to be made a doctor, but to get well;" * and in the next generation it was completely exploded; for as Aristotle says, the duty of a physician is simply to prescribe. †

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* Rep., iii. 406, ed. Jowett. Cf. the Jewish saying: "Death is better than a continual sickness." (Ecclus. xxx. 17).

† Nat. Hist., xxix. 2. xxvi. 6.

‡ Littre, *Œuvres d' Hippocrate*, Introd.

§ Strabo., xiv. ii. 19. Cl. viii. vi. 15.

‖ Dion. Cassius, xxxiii. 18.

¶ C. Muller, The Dorians, i. 114. The Rhodians spoke Doric in the time of Tiberius (Sueton., Tib., 36).

** "*Medicos dorice loquentes.*"—Meineke, Frag. Com. Græc., ii. 249.

†† C. Muller, On the Doric Dialect, ii. 439.

‡‡ Xen., Mem. iv. ii. 5.

§§ Liddell and Scott, Lex.

‖‖ Gorg., 456.

¶¶ Ibid.

Very different is the offhand manner in which the slave doctors treated their patients; they waste no words with them, but run about from one patient to another, and dose them as they think proper; or they "wait for them *in their own dispensaries*," ‡ This passage clearly shows that there were at Athens, in the fifth century B. C., dispensaries to which the sick poor repaired to be treated for their diseases; not indeed by the most skillful physicians, but by physicians paid by the State to look after their ailments. These dispensaries varied in number according to the prevalence of disease: "Where diseases increase in a State, then *larpeia* are always being opened." §

The temples of Asclepius were, however, the schools in which the students who had taken the noble Hippocratic oath studied, partly from the treatment of the patients who resorted thither. That patients did resort to the temples is evident from an amusing scene described by the slave who attended Plutus when he went to the temple to be cured of blindness. When night came on, all were commanded to keep silence, and not to move should they hear the god passing before the altars. The slave peeps through a hole in his threadbare cloak, and sees the priest "consecrate into a sack" the offerings of cakes and dried figs made by the sick. || Afterwards there followed the mixing of the drugs with the pestle and mortar, and the anointing the eyes with the ointment. The patients were of both sexes, for it was an old woman whose savory posset excited the cupidity of the slave Cario. ¶

There is one, though we regret to say only one, hospital mentioned in Greek literature, and that only by one author, the comic poet Crates, middle of fifth century B. C. It was situated probably in the Piræus. **

The State physicians did not receive private fees, but their State emoluments may be guessed by the pay of Democedes before he was carried prisoner to the kingdom of Darius. He fled from his father, who was a celebrated physician of his day at Crotona, and came to Ægina, where his skill caused the State to hire him at £243, 15s. a year; in the next year the Athenians engaged him at £406, 15s; in the next, Polycrates obtained him for £487, 10s. * The first payment made to him by Darius was a pair of golden fetters, to remind him, perhaps, that although he would now be laden with honors and wealth, yet he was to remain a prisoner, exiled from his native land.

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* Laws., 857. † Pol., iv. 2. ‡ Laws., 720.

§ Rep., 405. || Cf. Hist. of Bel and the Dragon. c. i. ¶ Aristophanes, Plutus.

** Meineke, Comic. Græc. Frag. ii. "Hujus nosocomii publica fortasse auctoritate constituti, nullus præterea scriptor in memoriam revocavit" (vol. ii., p. [illegible]).

(3). Hitherto we have met only with State physicians and dispensaries, and but one hospital; it is to India we must turn to see a system of hospitals spreading over the country.

When Brahma took compassion on the weakness and suffering of mankind, and wrote for them the commentary on the Vedas, he devoted one treatise to the science of medicine. Hence it was that the ancient Hindus ascribes to the medical art a divine origin, and that the Brahmans were the first physicians. Fragments only of this Ayur-Veda remain, but they are sufficient to show an advanced knowledge of the art, in that they treat both of surgery and the practice of medicine. †

Soon after the conquests of Alexander the Great, Megasthenes the Greek was sent on an embassage to the court of Sandrocothes, where he resided for some years. Among his notes, preserved by Strabo, we find that "next in honor to the Sramans were the physicians, for they apply philosophy to the study of the nature of man; * * * they cure diseases by diet rather than by medicinal remedies." ‡ The grandson of Sandrocothes was the celebrated King Asoka, 325–282 B. C., one of the greatest monarchs who ever graced a throne. He embraced the religion of Buddha, and almost immediately afterwards promulgated a series of edicts, some score of which still exist inscribed on pillars and graven in the living rock. Among these there occurs the following, as translated by Mr. Prinsep: "Everywhere within the province of Piyadasi (Asoka), the beloved of heaven, as well as in the parts occupied by the faithful, * * * and moreover within the dominion of Antiochus the Greek [the Bactrian kingdom], * * everywhere the heaven-beloved Piyadasi's double system of medical aid is established—both medical aid for men and medical aid

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Boeckh, Public Economy of Athens, i. 160, London, 1828.

† T. A. Wise, Review of the History of Medicine, vol. i., London, 1857.

‡ India, xv. i. 36.

for animals—together with medicaments of all sorts which are suitable; * * * and where they are not, they are to be prepared, and to be planted, both root-drugs and herbs."* There is also a legend that Asoka, seeing how people often died from diseases and sores which were at first simple and easily cured, established public dispensaries at the four gates of Patna. † In the year 400 A. D., seven hundred years after Asoka's edict, the Chinese pilgrim, Fa-Hian, visited India, and casually mentions in his "Travels" that he found hospitals in complete working order at Asoka's own city of Patna: "The nobles and landowners of this country have founded hospitals in the city, to which the poor of all countries, the destitute, the cripples, the diseased, may repair for shelter. They receive every kind of requisite help gratuitously. Physicians inspect their diseases, and according to their cases order them food and drink, decoctions and medicines, everything, in fact, which may contribute to their ease. When cured, they depart at their own convenience." ‡

Two-hundred and fifty years later (648 A. D.), another Chinese pilgrim, Hiouen-Thsang, visited India, and mentions hospitals at several places. At the Port of the Ganges, "les rois qui aiment a faire le bien, y ont etabli une *maison de bienfaisance*, qui est pourvue de mets recherches et de medicaments de tout genre, pour donner l'aumone aux veufs et aux veuves, et secourir les orphelins." Elsewhere he says: "Les grands personnages des cinq Indes * * * ont etabli des maisons de bien faisance, ou l'on distribue des boissons, des vivres, et des medicaments pour secourir les pauvres et les maladies." "Il y avait jadis dans ce royaume une multitude de maisons de bienfaisance, ou l'on secourait les malheureux."§ These houses were *hospices* as well as hospitals at the time of Hiouen-Thsang's visit.

At the commencement of the present century there still flourished at Surat a hospital set apart for the treatment of animals. It covered twenty-five acres, and was divided into courts and wards for the accommodation of the dumb patients. When an animal broke a limb, or was otherwise disabled, the owner brought it to the hospital, where it was received without regard to the caste or the nation of its master, and was treated with the greatest care; and, if need be found, a peaceful asylum for the infirmities of old age.* "If proper inquiry were directed to this building," says Mr. Prinsep, "I dare say it would be discovered to be a living example—the only one that has braved twenty centuries—of the humane acts of Asoka, recorded at no great distance on a rock in Guzrat."

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* Edict. II. † Spiers, Ancient India, p. 319.

‡ Fa-Hian's Travels from China to India, Beal's trans., p. 107.

§ *Memoires sur les Contrees Occidentales, par Hiouen-Thsang*, in A. D. 648, translated by Stanislas Julien, ii. 231 , 190; ii. 174, 215. Paris, 1857.

Further investigation will doubtless bring to light many other instances of this wise and compassionate edict of Asoka having been put in force over the whole country; for quite recently, Major Kittoe (1852) found, in the course of his excavations at Sarnath, "a large quadrangle or hospital, with pestles and mortars, etc."†

The great interest of these hospitals lies not only in the large-hearted toleration which opened them "to the poor of all countries," and in the liberality which supplied "help to all gratuitously," first fruits of that noble-minded charity which knows no distinction of race or creed in the presence of suffering humanity, and which found so tender an illustration in Christ's story of the good Samaritan, but also in the fact that these hospitals are an evolution such as we might naturally expect from the teaching of the religion of Buddha, which Asoka had adopted. The central point round which all the ethics of Buddhism revolve—the doctrine which imparts to it so great a vitality and strength—is the law of self-sacrifice carried to the point of complete devotion, so that a man should lay down his life for his fellow men, and in certain extreme cases for the lower animals. Moreover, the problem of existence which Buddha endeavored to solve is the way by which mankind may be saved from disease, decay, and death. The life of the founder was in itself the highest ideal of his religion, for Buddha was manifested in the form of man because his exceeding love moved him with compassion for the sons of men;‡ and he left the home of his reputed father to live among the poor and wretched, in order that he might bring back those who have wandered from the right way, that he might enlighten those who are living in darkness and gloomy error, and that he might remove from the world all sources of pain and suffering and sorrow.*

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* Hamilton's East India Gazetteer. [illegible] Surat is a very ancient town, for it is mentioned in the Ramayana. Scavoneur, Voyages, ii, [illegible].

† Cunningham's Arch. Survey of India, p. 12[illegible]

‡ Catena of Buddhist Scriptures, by Rev. S. Beal, p. [illegible]

(4). On passing from the East to the extreme West, we find that the ancient Mexicans and hospitals in the principal cities, "for the cure of the sick, and for the permanent refuge of disabled soldiers." Surgeons were placed over them, who were "so far better than those in Europe," says the old chronicler Torquemada, "that they did not protract the cure in order to increase the pay." †

This care for the sick and disabled might naturally be expected from a people who were accustomed to hear the form of absolution which followed on the confession of their sins close with the words: "Clothe the naked, feed the hungry, whatever privations it may cost thee; for remember their flesh is like thine, and they are men like thee;" ‡ and who worshipped God as "the merciful and long-suffering, the enjoiner of charity." §

(5). The history of medicine may be traced with tolerable clearness in the Hebrew nation."

So long as diseases were regarded as put upon and taken off men by Jehovah—as, for instance, in the passage. "I will put none of these diseases upon thee that I put upon the Egyptians, for I am Jehovah that healeth thee," ||—the priests as his representatives, were the physicians to afflict and to cure. The fame of King Solomon as a physician still holds its place in the traditions of the East, and the Talmud assigns to him a "volume of cures." After his time, when the priestly power declined before the majesty of the prophetic, the influence which medical skill gives among a rude people was eagerly grasped by the prophets, and medicine was taught in their "schools." Their sacred scriptures record that the prophets struck men with two of the most terrible diseases of the nation, leprosy and blindness, and that they cured the sick, and even raised the dead to life. At a prophet's word a king's hand is withered as he stands before the altar surrounded by his court; at the same word the hand is restored to its former strength. The decline of the healing power among the priests is probably

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* Romantic History of Buddha, Beal, p. 143.

† Prescott, History of Conquest of Mexico, i. 40. ‡ Ibid.

§ Kingsborough, Antiquities of Mexico, ix. 179.

|| Exod. xv. 26. Carmoly translates, "L'Eternal est le Médecin du peuple." (Histoire des Médecins Juifs, Bruxelles, 1844).

marked by the chronicler's lament that King Asa, in his disease, "sought not to Jehovah, but to the physicians."

On the return of the exiles from Babylon, the medical art passed into the hands of the new power in the State—the scribes. They raised the dignity of the physician to a high pinnacle, and the knowledge of medicine became an essential qualification for membership in the Great Sanhedrim: "Honor a physician with the honor due unto him for the use which ye may have of him; for the Lord hath created him. * * He shall receive honor of the king."* The art reached its fullest development among the Essenes, a Jewish sect who lived an ascetic life, ruled by love to God and man. They studied the sacred books for the service of man.

The surgeon and the physician are treated as distinct functionaries in the Mishna.† We read of surgery in the Book of the Prophet Ezekiel, and curiously enough in connection with Egypt: "I have broken the arm of Pharaoh king of Egypt; it shall not be bound up to be healed, to put a roller to bind it."‡ Rollers to bind are used to this day. The apothecary's trade is frequently mentioned; for instance, "The Lord, hath created medicines out of the earth, * * with such doth he heal men and taketh away their pains; of such doth the apothecary make a confection." §

Josephus mentions female physicians.||

Physicians had from early times been a necessity to the nation. Manetho's account of the Hebrew slaves in Egypt is that they were driven away by the king because they defiled the land with their leprosy. The disease became so identified with the nation, not only in their neighbors' eyes but in their own, that to the question asked in the Talmud, "What is the name of the Messias?" the answer is, "The Leper." ¶ This singular identification of the Messiah with the characteristic of the people obtained a place among the Christian legends of the Middle Ages. When, for instance, St. Francis d'Asissi dismounts from his horse to succor a leper, he finds in the leper the Christ. ** This strange idea was probably founded on the Vulgate rendering of Isaiah liii 4,

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* Ecclus. xxxviii. 1.

† R. J. Wunderbar, *Biblisch-Talmudische Medicin*. Leipzig, 1865.

‡ Ezek. xxx. 21. Nothing can exceed the skill with which the limbs of the Egyptian mummies are bound.

§ Ecclus. xxxviii. 4, 7, 8.

|| Vita, 37, ed. Havere.

¶ Pearson, Creed, iv. 206 n.

** Stephen's Eccl. Biog., p. 61.

"*Nos putavimus eum quasi leprosum.*" The ceremonial observances which required the lepers to "show themselves to the priest," assume a knowledge of medicine in some officials connected with the priestly order. Accordingly we find that physicians were in later times attached not only to the temple, but also to the synagogues. They were elected, as were the Greek State physicians, by the voice of the people, to whom they were responsible.* The physicians in all times, whether priests, prophets, or scribes, received fees †—in early times, "bread and cakes and honey" from the poor, camel-loads of stuffs, with gold and silver from the rich; in later times, "such things as were commanded."

The contagious nature of leprosy required that the wretched patients should dwell apart from the abodes of men; so we read of them herded together in miserable groups prowling about the outer gates of cities, or wandering over the country, always raising their weird cry, "Unclean, unclean!" and standing afar off when they saw their fellow-men approaching. It is possible that houses may have been erected for their accommodation outside the city walls of some of the larger towns. Of one such house we read, but as in the case of ancient Greece, of one only, the "several house" into which King Uzziah retired when the "leprosy mounted into his forehead," and the priests with indecent haste thrust out from the sacred precincts of the temple the sorrow-stricken leper who himself "hasted to go out." Ewald, Gesenius, and other great scholars, see in this "several house," or "house of separation," or "free house," a hospital corresponding to the leper hospitals of later times. It may have been in this house of separation that some leper wrote the touching "prayer of grievous complaint," in which he cries aloud to Jehovah: "I am counted with them that go down into the pit, free among the dead. Lover and friend hast thou put from me, thou hast made me an abomination unto them. I am shut up, I cannot come forth." ‡

Care for the sick, a characteristic of the Jews to this day, is what we might look for in the nation whose sacred writings inculcate as the highest religion love to God and love to man; and whose greatest rabbis taught, "Be not slow to visit the sick, for that shall make thee to be beloved,"* and raised the kindly act towards the sick man to the dignity of a deed done to God, for "the glory of God hovers over the couch of the sick." †

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* Rev. A. L. Green's letter to "Jewish World," October, 1875.

† In Exod. xxi. 9, the LXX. reads *ἰατρεῖα*. May not this word which, as we have already seen, occurs in Plato, have reference to dispensaries, similar to those with which the seventy were familiar in Alexandria?

‡ Ps. lxxxviii.

(6). The elder Pliny tells us that for six hundred years the Romans had shown a repugnance to the art of medicine, and he boasts that medicine is the only one of the arts of Greece which Romans refuse to cultivate. It was on this account, he says, that the temple of Æsculapius was built, in the first instance, outside the city walls, and was afterwards removed to an island in the Tiber. Plutarch revenges himself by saying that the temple was built in imitation of the famous temple at Epidaurus, which was situated at a distance of five miles from the city for the sake of the fresh air and change of scene.

Pliny is probably correct in stating that in the earliest days of the republic physicians were unknown, and that for some time afterwards they were confined to foreigners, chiefly Greeks and Egyptians‡ and to slaves. The first physician who came from Greece to Rome, in 219 B. C., had a surgery (*taberna*) provided for him at the public cost, at the Acilian crossway; the Romans called him *vulnerarius*, the wound-curer; but he hacked and cauterized his patients so mercilessly, that his name was changed to *carnifex*, the executioner.§ Cato hated the Greek physicians because they spoke of the Romans as "barbarians" and "clodhoppers;" and he became possessed with the idea that they meant to poison the Romans wholesale with their drugs. The use of Latin by physicians in our day in their prescriptions may be a survival of the idea which is by no means confined to Pliny's time, that "people lose confidence in that which is intelligible to them;" for, as he says, even the few Romans who studied medicine thought it necessary to write their prescriptions in Greek, for "if they should attempt to treat of the disease in any other language, they will certainly lose all credit, even with the ignorant who do not know a word of Greek." Slaves skilled in medicine were attached to all the great houses, and Justinian allows the maximum price of sixty gold pieces to be paid for both male and female. ||

Pliny accuses the physicians of extreme avarice. Indeed, their

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* Ecclus. vii. 35.

† Talmud.

‡ Nat. Hist., xxix. The oculists, whose names we find on their seals, were most of them Greek origin. (Teuffel, Hist. Rom. Lit., i. 15),

§ Nat. Hist. xxix. 6.

|| Code, vii. 7, 1, 5.

gains were so large that skilled artisans—bootmakers, carpenters, tanners, and even grave-diggers—became doctors, and unsuccessful doctors sank back into the humbler trades.

> Nuper erat medicus, nunc est vespillo Diaulus.
> Quod vespillo facit, fecerat et medicus.[*]

Their charlatanism, bad manners, and ignorance were so great, that Galen says the greater part of them could read only with difficulty, and he counsels his colleagues to be on their guard lest they should make grammatical blunders when conversing with their patients; and he moreover complains that at the bedside of the patient the rival doctors so far forgot themselves that they abuse each other, put out their tongues, and even come to blows.[†] Pliny laments there is no law to punish their ignorance, and he chuckles over the well-known epitaph, "*Turba medicorum perii.*" Under those circumstances, one is not surprised to find *ex votos* of arms and legs, ears and eyes, and tablets commemorative of successful dreams, adorning the temple both at Rome and in the provinces. One tablet reminds us of the story of the cure of the young Egyptian princess by the god after the failure of the physicians; it is the tablet of a blind slave at Rome to Minerva Medica, the "good goddess," for the restoration of sight: "After he had been given up by the physicians, he was cured by the grace of our lady and the use of her medicines."[‡] It was this superstitious element which caused the miraculous cures of the Emperor Vespasian at Alexandria to be attested by many among the great multitude who beheld them, even after the Flavian line had become extinct, and nothing was to be gained by falsehood.[§]

Physicians and surgeons followed each their own functions; and we read of specialists, oculists, dentists, aurists (*auricularii*), etc.; there were court physicians, among whom we read of one who was above the others (*supra medicos*); and women (*medicæ*) were employed for diseases of women and childen.

In the time of the Antonines we read of a "chief of the physicians."[||] *Archiatri populares* were provided for every city according to its size; they formed a college of physicians, and seem to have held a sort of examination of persons qualified to practise. They were elected by a vote of the citizens, and received a salary from the public treasury. They were required to treat all the sick who came to them free of charge, but they were appointed primarily for the sake of the poor.*

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[*] Martial.

[†] Com. in Hipp. iv. 9. quoted by Friedlander.

[‡] Friedlander, iv. 235–241.

[§] Tacitus, Hist., iv. 81.

[||] A title which St. Jerome applies to Christ, Hom. in St. Luc., viii.

It is, however, at Epidaurus that we find a house which was one of the noblest expressions of the tender feeling and gentle sympathy with suffering humanity which in the second and third centuries of our era were becoming such marked characteristics of the cultivated Roman gentleman. Many cultured Romans took the same tour as that described by Livy: Æmilius Paulis went to Athens, "filled with the decayed relics of ancient grandeur;" thence to Corinth, with its beautiful views and busy modern life; and thence to Epidaurus, famous for its temple of Æsculapius, "then rich in offerings, which the wealthy had dedicated to the deity in acknowledgment of the remedies which had restored them to health, but *now*," he adds sorrowfully, "filled only with their traces, showing whence they have been torn away."† As the tourist of the time of the Antonines approached the walls which surrounded the temple, the sacred grove, and the massive buildings (whose ruined mounds to this day attest their former magnificence‡), he would see a house built before the entrance to the gate to shelter the aged, and the delicate women, who were forbidden to tarry within, lest the sacred precincts should be defiled by those who were leaving life. That house had been erected by the emperor Antoninus, who won from the Roman senate and people that most touching of all the titles of antiquity, the Pius.§

(7). We read of military surgeons as early as the time of Homer. "In those days," says Plato, "the sons of Asclepius were heroes as well as physicians; for when the arrow of Pandarus wounded Menelaus, they sucked the blood out of his wound, and sprinkled soothing remedies (Il. iv. 218): these remedies they thought to be enough to heal any man whose constitution was healthy and sound."‖ The State physicians of Egypt were forbidden to take fees when attached to the army in time of war.¶ Cyrus employed surgeons to march with his army; so did the Spartans. Among the Romans, soldiers dressed each other's wounds until the time of Augustus, when we first hear of military surgeons. The German wives and mothers "did not fear to search for and to count the gashes" of the wounded heroes whom they had accompanied to the battle.[*]

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* Dumas, *Des Secours Publics en usage chez les Anciens*, p. 136, Paris, 1813.

† Lib. lxv. 27, 28.

‡ The sacred character is preserved in its name of *Hieron*, the sanctuary; and the village is called *Koroni*, evidently from Koronis, the mother of Asclepius.

§ Pausanias, ii. 27. Champagny, *Les Antonins*, tom., ii., p. 183.

‖ Rep., iii. 406.

¶ Diod., i. 82. In the smaller temple at Aboo Simbel, in Nubia, a surgeon is seen dressing a wound in the foot of a soldier. (Edwards, A Thousand Miles up the Nile, p. 438).

It is not, however, until the reign of Hadrian that we find the military hospital, which is called *valetudinarium.* It was under the control of the prefect of the camp, whose duty it was to see that the surgeons visited their patients.[†] These *valetudinaria* were always attached to the winter quarters, and those generals who visit the sick and wounded are applauded.[‡]

We have already seen that the ancient Mexicans had hospitals for the care of the sick, and as a refuge for disabled soldiers, institutions which may have foreshadowed our Chelsea Hospital and Les Invalides at Paris.

The most remarkable instance of a military hospital was one in Ireland. The Palace of Emania was founded about 300 B. C. by the princess Macha of the Golden Hair, and continued to be the chief royal residence of Ulster until 332, A. D., when it was destroyed. To this palace were attached two houses,—one the house in which the Red Branch Knights hung up their arms and trophies; the other, in which the sick were cared for and the wounded healed; this latter was called by the expressive name, *Broin Bearg,* the House of Sorrow.[§] The institution of the house of sorrow spread through Ireland under the influence of Christianity, and the ancient laws sanction the right of distress to provide for the sick "a physician, food, proper bed-furniture, and a *proper house.*"[||]

(8). Such was the progress made by some of the great nations in the noble effort to ameliorate the condition of the sick and suffering, when, towards the close of the fourth century after Christ, Christianity inspired the world with the enthusiasm of humanity. A noble Roman lady, Fabiola, devoted her princely patrimony to build, in a salubrious quarter near the city, a house for the reception of the sick and the infirm who were found homeless and without shelter in the streets. This, says St. Jerome, was the first.[¶]

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[*] Tacitus, Germ., 7.

[†] Fl. Vegetius, *De Re Milit.*, ii. 10.

[‡] Dumas, *Des Secours Publics* iv. 1.

[§] Sir W. Wilde, Note on Census for Ireland, Part iii., Parl. Papers, 1851, vol. lviii.

[||] Sanchus Mor., p. 123. Dublin, Thom., 1865.

[¶] Ep. 77, c. 6. ("*primo omnium instituit*").

The fame of this institution spread throughout the Roman Empire, "from the Egyptians and the Parthians to the isles of Britain." The work was carried on by St. Basil, who built outside the walls of Caesarea in Cappadocia, probably on the site of an earlier hospital,[*] the massive pile of buildings which, says St. Gregory Nazianzen, "rose to view like a second city, the abode of charity, the treasury into which the rich poured of their wealth and the poor of their poverty. Here disease is investigated and sympathy proved." No building of antiquity seemed to him to equal this hospital, not even "Thebes with its hundred gates, nor the walls of Babylon, nor the pyramids of Egypt, nor the Colossus of Rhodes, nor the tomb of Mausoleus." My brother's hospital," he says, "is a tabernacle of witness to the world, like unto Moses."[†]

St. John Chrysostom found at least one hospital already existing when he went to Constantinople, and he built many more on the plan of the *Basileas.* We may form some idea of the number of hospitals at Alexandria from a law of Honorius which mentions no less than six hundred nurses, *parabolani,*[‡] who were placed at the disposal of the bishop for the nursing of the sick.—*ad curanda debilium ægra corpora.*"

Noble ladies like Fabiola gave themselves up to the work of nursing the sick. The empress Placilla visited the sick in their own homes and in the public hospitals, she stood at the bedside, she tasted the broth, handed the food, washed the cups, and performed other offices with her own hands, such as the meanest servants ordinarily did.[§] The aged bishop of Carthage, Deogratias, having sold the church plate to ransom the captive Christians, lodged them in two large churches, and every hour by night and day he visited them, with the physicians, and went from bed to bed to know of what each stood most in need.[||] In the great plague at Alexandria (A. D. 260–268) many of the brethren nursed the sick in the height of the disease; they saved many by their care, who rose from their beds to life, while they themselves fell struck by the plague unto the death: "They saved others, themselves they could not save."[¶] This work of the Christians excited the emulation of the emperor Julian: "These impious Galileans give themselves to this kind of humanity;" and although he thought their motive base, yet [*] he orders Arsacius to "establish abundance of hospitals in every city, that our kindness may be enjoyed by strangers, not only of our own people but of those who are in need." [†]

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[*] See Ep. 94, ad Heliam.

[†] Orat. 20, ed. Colon.

[‡] Cod. Just., i. 3. 18. Strictly speaking, nurses in infectious diseases, for they *cast themselves* into hazard of their lives with a recklessness which is divine.

[§] Theod., Hist. Eccl., v. 18.

[||] Victor. Utic. De Pers. Vand.

[¶] Euseb., Hist. Eccl., vii. 22. Cave, Primitive Christianity, III. iii. 309.

To the great hospital at Cæsarea there was attached a "house of separation" for the lepers, of whose wretched condition St. Gregory of Nyssa gives such an appalling account. They wandered in troops over Cappadocia in search of food, and exposed to the inclemency of the seasons. They resembled corpses before death. Clothed in rags, supported by a staff fastened with a string, not to the hands, which had been eaten away by disease, but to stumps of the arms which were left, driven from the towns and the assemblies of men, tracked as hunters track wild beasts, they did not dare even to approach the wells and fountains on the roadside to quench their burning thirst. "Basil it was who persuaded men not to scorn men, nor to dishonor Christ the Head of all by their inhumanity towards human beings." [‡]

Most if not all of these early Christian institutions were *hospices* as well as hospitals—the home of the stranger no less than the home of the sick. It is interesting to note the difficulty of finding a word to express these new buildings. St. Jerome uses a Greek word, for the house built by the gentle lady who herself *cared for the sick* whom she received. St. Basil evidently felt a difficulty in finding a name for his institution. In one letter he speaks of it as the support of the poor, [§] in another as a place of lodging, [||] open to strangers passing through the country, and to those who need peculiar treatment by reason of the state of their health; while Sozomen falls back upon its popular name, *Basileas*, "that most famous lodging for the poor founded by Basil from whom it received the appellation which it still retains." [¶] It was reserved for later times to take one of the most sacred ideas of ancient days, hospitality, and inspiring it with the spirit of Christianity to enshrine it for future ages in the home which is open to all who are suffering from sickness and from pain: "Go out into the streets and lanes of the city, and bring in hither the poor, and the maimed, and the halt, and the blind, * * * that my house may be filled."

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[*] Frag. 305, Rheinwald, *Kirchliche Archaologie.*

[†] Epist. 49.

[‡] A Tollemer, *Des Origines de la Charite Catholique*, Paris 1863. Martin-Doisy, *Histoire de la Charite*, Paris, 1848.

[§] Ep. 176.

[||] Ep. 94.

[¶] Hist. Eccl., vi. 34.

Thus we see that the glory of Christianity does not lie in having originated the idea of hospitals, but in having seized it, like the runners the torch of the ancient games, and carried it forward with brighter flame and more intense enthusiasm. The fame of Fabiola and St. Basil has been immortalized by St. Jerome and the Gregorys; the edict of Asoka is graven with a pen of iron in the rock, a living witness to the noble thoughts of his kingly mind; the house of sorrow, which was built without the ancient *rath* that exists to this day, speaks of the tenderness of the princess Macha; but no trace remains of the names and titles of the men and women who built the solitary hospital on the seashore in the Piræus, who founded the house of separation for the lepers in Judæa, and the home for the disabled soldiers in Mexico; or of those, even more illustrious, who in ancient Egypt conceived the idea of the physician paid by the State to tend the poor—an idea which contains the germ that has borne fruit in the vast network of hospitals which are spreading over the continents of Europe and America. Their names may be forgotten but their deeds are immortal; they have joined

> that choir invisible,
> Whose music is the gladness of the world.

A Jewish legend, preserved in the Haggadah, tells us that Abraham wore upon his breast a jewel "whose light raised those who were bowed down and healed the sick;" and that when he died it was placed in heaven, where it shone among the stars. of heaven and as the sand on the sea-shore are the men and women of all countries and of all creeds who have worn next their heart the patriarch's jewel of light.

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Bi-Monthly Abstract.

Current Contributions to Obstetrics, Gynecology and Diseases of Children.

Condensed by Edward B. Stevens, M. D., Lebanon, Ohio.

Anæsthetics in Labor.—M. Piachaud read a paper before the International Medical Congress, of Geneva in which he advanced the following conclusions:

1. The employment of anæsthetics is, as a general rule, advisable in natural labor.

2. The principal substances which have been used for this purpose up to the present time, are ether, chloroform, amylene, laudanum, morphia hypodermically, chloral by the mouth and by injection.

3. Of these chloroform seems to be preferable.

4. It should be administered according to the method of Snow; that is, in small doses at the beginning of each pain, its administration being suspended during the intervals.

5. It should never be pushed to complete insensibility, but the patient should be held in a state of semi-anæsthesia, so as to produce a diminution of the suffering.

6. The general rule is never to administer chloroform except during the period of expulsion; but in certain cases of nervousness and extreme agitation it is advantageous not to wait for the complete dilatation of the os.

9. Experience has shown that anæsthetics do not arrest the contractions of the uterus or abdominal muscles, but that they weaken the the natural resistance of the perineal muscles.

8. The use of an æsthetic has no unpleasant effect on the mind of mother or upon the child.

9. In lessening the suffering, anæsthetics render a great service to those women who dread the pain; they diminish the

chances of the nervous crisis which are caused during labor by the excess of suffering; they make the recovery more rapid.

10. They are especially useful to calm the great agitation and cerebral excitement which labor often produces in very nervous women.

11. Their employment is indicated in natural cases until the pains are suspended or retarded by the suffering caused by maladies occurring previous to or during labor, and in those cases where irregular and partial contractions occasion internal and sometimes continuous pain without causing progress of the labor.

12. In a natural labor, chloroform should never be used without the consent of the woman and her family.

M. Courty advocates the use of chloroform. He thinks it indicated when the pains are very great and irregular, or where the patient demands it. M. Leblond prefers to use the hydrate of chloral. — *Gazette Medicale. N. Y. Med. Record.*

ARTIFICIAL ALIMENTATION OF INFANTS.—Prof. Zweifel, of Erlangen, has just published a paper on this subject, which furnishes many practical suggestions to the profession. He finds that the casein of different kinds of milk differs in digestibility; that casein from the milk of a mother is more readily digestible than that contained in cow's milk, and that condensed milk is preferable to the buying of milk from the cart without guaranties as to the health of the animals, from which the latter was obtained. The addition of sugar to milk accelerates lactic fermentation, when it has once commenced, and augments the gravity and danger of infantile diarrhœa. Farinaceous compounds of all kinds should be proscribed for the first two or three months, as the salivary glands and the pancreas are not yet competent to their functions. Liebig's soup is more easily digested than porridge, because some of its constituents assist to dissolve the farinaceous compounds mixed with them. Acute diarrhœas in babies are due to the formation of an acid irritant in the intestines which may be detected by the presence of green coloring matter in the excreta.—*N. Y. Med. Record.*

INTRA-UTERINE RESPIRATION OF THE FŒTUS.—The case occurred in Guy's Hospital, Lying-in Charity, under the care of Dr.

Galabin. The fact of the establishment of intra-uterine respiration has an important medico-legal bearing, as well as clinical. Post mortem examination showed that the left lung had been sufficiently expanded by air to float in water, although the fœtus had probably died at least three hours before delivery. The case was complicated by copious hæmorrhage early in the progress of labor, dependent on placenta prævia; and further on the administration of chloroform to perform version, the patient became dangerously asphyxiated. The report proceeds:

Bipolar version was then performed by Dr. Galabin, the patient being in the dorsal position, and the right hand used internally. The head was already so high that its upper margin was at the level of the umbilicus, and could not be pushed under further by the internal fingers passed through the elongated cervix; it was therefore carried up to the right iliac region by the external hand acting alone, and the left knee was afterwards pushed down within reach of the finger in the cervix. Bleeding was arrested from this time, but the cervix remained too rigid to allow delivery to be completed, although ergot was again administered and traction made upon the leg. The fœtus was then observed to make convulsive movements, and with each movement a gasping sound was heard from the uterus; this was audible from the further extremity of the small room, and upon auscultation had a startling loudness. It was evident that during version, air had found its way to the fundus of the uterus, and that the fœtus, becoming asphyxiated from detachment of the placenta was trying to breathe. The gasping was continued at intervals for about a quarter of an hour. It was impossible to effect extraction quickly, and no attempt was made to supply the fœtus with air through a tube for fear it should obtain entry into the uterine veins. If a double action canula had been at hand it might have been a safe measure to withdraw air by suction through it from the uterus, thus allowing fresh air to supply its place, and keep the fœtus alive until the cervix yielded. About three hours afterwards some uterine contraction commenced, four full doses of ergot having been given. The cervix gradually dilated, strong traction being made upon the legs, and the fœtus was extracted about four hours after the performance of version; it gave no sign of life. An autopsy was made, and it was evident that air had entered the lungs, the greater part of the left lung being sufficiently expanded to float in water. The fact of the intra-uterine respiration of the air was thus confirmed. The mother suffered from severe febrile symptoms from the second to the fourth day, the temperature rising to 105°, and the pulse to 140°; but eventually she made a good recovery.—*London Lancet.*

CASE OF RENEWED LACTATION.—This is a case that affords practical illustration of the fact that frequent nursing is the most efficient galactagogue. The mother was confined May 30, 1876, as the result of inflammatory symptoms which proved to be due to pelvic cellulitis, there was a gradual but complete arrest of the milk secretion. A variety of troubles served to continue an exhausted condition of the patient up to August 11th, when she exhibited appearances of improvement. She had not nursed for eleven weeks; her breasts were small and flabby. She was now induced to apply the child to the breast, although there was not a drop of milk. To the surprise of the mother, and of the nurses in the house, to whom the proceedure seemed very ridiculous, milk began to appear in a few days. October 8th she was able to furnish, perhaps, two-thirds the quantity of milk which her infant required.

Mothers sometimes having little breast milk, suckle their babies at long intervals, and finally, discouraged at the unproductive state of their breasts resort to weaning. Such cases as the above serve to show that in many instances, by patience and more frequent lactations, these mothers might become good wet nurses.—*Obstet. Journal, Great Britian and Ireland.*

GASTROTOMY SUCCESSFULLY PERFORMED IN A CASE OF RUPTURE OF UTERUS.—Dr. Hart, of Nieuwer Amstel, in Holland, relates a case of spontaneous rupture of the uterus, in which the patient's life was saved by gastrotomy. Previous labors had been tedious and requiring the use of forceps. In the present case Dr. Hart was about to terminate the labor by forceps, when suddenly as an examination was being made, violent uterine action took place, and considerable hæmorrhage occurred from the vagina, after which all pains completely ceased. The fœtus gradually receded, and after a few minutes was out of reach, slight sanguineous discharge continuing. The pulse rose to 100 but remained full The moment at which rupture took place was about five hours from the time when the patient had been first seen, and the os found to be dilated to a diameter of 4.5 ctm. ($1\frac{3}{4}$ inches), the liquor amnii having escaped.

Prof. Simon Thomas was called in, in consultation, and discouraged any interference, but Hart nevertheless resolved to perform gastrotomy, and the patient accepted this operation. It was carried out nine hours after the rupture. The pulse had risen to 126, and there was severe abdominal pain. The fœtus and placenta were found in the peritoneal cavity, the former lying in a dorso-anterior position. The uterus was firmly contracted. In the supravaginal portion of the cervix, at the anterior part, was a transverse rent 3 ctm. in length; and as no bleeding was taking place, and there was not sufficient space for sutures between the rent portion of the uterus and the bladder, no sutures were employed, but the pelvis was carefully sponged out. Convalescence was uninterrupted, the temperature never rose above 38° C., and the patient was able to go out of doors thirty-three days after the operation.

The author contrasts the success of this case with a series of thirteen cases of rupture of the uterus collected by Prof. Lehmann. In none of these was gastrotomy performed, but in most the fœtus was extracted by version or forceps. All the patients died within a few days.—*Nederlandsch Tijdschrift voor Geneeskunde, No*, 42,—*Obstet. Jour. Grt. Brit. and Ireland.*

THE RELATION BETWEEN ERYSIPELAS AND PUERPERAL FEVER. Dr. Atthill records the serious effects which followed from the admission of a patient suffering from erysipelas into the Rotunda Hospital. During the winter of 1876–7, the mortality in the hospital had been very low. On the 15th of February a woman suffering from erysipelas in the head and face, was sent to the hospital in labor, and was injudiciously admitted. She was placed by herself in a small ward, adjoining the large ward No. 2, which was also empty, having that morning undergone the usual process of cleaning. Shortly after admission she was delivered, and next morning, although to all appearances doing well, she was sent by Dr. Atthill's direction to Hardwicke Hospital, so great did he consider the danger from her presence to the other puerperal patients. All the bedding was then removed to be washed and stored, and the ward itself was fumigated, and then left unoccupied for some weeks.

On the 16th and 17th, after the removal of this patient, six patients were admitted into No. 2 ward, separated from that in which the case of erysipelas had been, by a small ward occupied by one of the patients, the three wards opening directly off each other. Five of the patients suffered from severe symptoms of peurperal peritonitis, and two were alarmingly ill, but all eventually recovered. The only one who altogether escaped was a case of abortion in the third month of pregnancy.

On the afternoon which the erysipelas case was delivered, four patients were admitted into No. 1 ward, which is on the other side of the corridor to the ward occupied by her, and further separated from it by the width of a staircase. Two of these merely complained a little, a third had symptoms similar, though in a less marked degree to those exhibited by the patients in No. 2 ward. The fourth, a very delicate woman, who had been ailing before admission, was attacked in a similar manner and died.

Thus of ten patients admitted into a hospital, of which the sanitary conditions had, previous to the admission of a case of erysipelas been most excellent, nine were attacked with illness more or less severe, and one died, the only one who escaped being a case of abortion.—*Med. Press and Circular.—Obstet. Jour. Grt. Brit. and Ireland.*

THE SO-CALLED MILK FEVER AND ANTISEPTIC MIDWIFERY.—Dr. Blair D. Taylor, of Fort Rice, D. T., having noticed that the train of symptoms known as *milk fever* never commenced until after the discharge from the uterus had become decomposed and offensive, began the use of antiseptics; since then he has never seen in any case of obstetrics, any of these symptoms, whether the secretion of milk was abundant or otherwise. His mode of procedure after labor is this: In five or six hours after the placenta has been delivered, he slips a bed-pan under the woman, and injects into the vagina, with a Davidson's syringe, a quart, or a quart a half of warm water, containing two or three per cent. of carbolic acid, or if the lady objects to the odor, an equivalent proportion of salicylic acid. The water washes out the vagina thoroughly and disinfects all clots remaining there. Repeat this twice a day for four days, then once for three more days, when it is no longer needed. There will be no odor to the discharge, nor will there be a symptom of fever, no matter how much milk there may be.—*N. Y. Med. Record.—Obstet. Jour. Great Britian and Ireland.*

SUB-SULPHATE OF IRON AS AN ANTISEPTIC IN SURGERY OF PELVIS.—Dr. Wilson, of Baltimore, presented a paper on the above subject to the last meeting of the American Gynecological Society, at Boston. He maintained that the subsulphate of iron was one of our best antiseptics in all surgical operations where union by first intention was not expected. For example in ovariotomy, in cases in which extensive adhesions, parietal and visceral, had been present and had been separated, and where there had been considerable oozing, after the hæmorrhage had been completely checked, all the raw surface should be liberally coated with the subsulphate of iron in the proportion of one part to three of water. It should be applied as an antiseptic, and not as a styptic. He was of the opinion that if coating such raw surfaces with a dilute solution of Monsel's solution was more extensively practiced, that there would be a less number of deaths from septicæmia than occurred after the ordinary method of treatment. In like manner it was recommended as an antiseptic in all operations about the pelvis, such as division of cervix, removal of intra-uterine fibroids, after the use of the curette in the removal of fungoid growths, etc., etc., after the cervix, the vagina, or whatever cavity it was that gave a raw surface, first with hot water, and then with a dilute solution of sub-sulphate of iron. The doctor believed that if this was practiced regularly there would be much less of septicæmia than occurred under the usual method of management.

He almost never applied the subsulphate of iron to the cavity of the uterus without combining it with glycerine. Unless so combined, according to his experience, hæmorrhage had been increased rather than diminished, when the iron was introduced and came in contact with the blood. Such was the result because the iron acted as a local irritant in the cavity of the uterus, and thereby increased the tendency of blood to the part, consequently the hæmorrhage. Where the combination of *iron and glycerine* came in contact with the blood, such hard masses were not formed, as where the blood came in contact with the iron diluted with water, hence the less irritation produced by such masses. He had divided the cervix backwards ninety-nine times; and he always after all hæmorrhages had been arrested, applied a pledget of cotton, dipped in a solution of subsulphate of iron and glycerine, between the lips of the wound, and left it there, not as a styptic, for all bleeding was checked before the cotton was applied. He used it for the same purpose, after all severe operations about the vagina and the rectum, especially after the removal of the hæmorrhoids and polypi of the rectum, and after operation for fistula-in-ano. These operations had some bearing upon gynecology, and in them all he employed the subsulphate of iron as an antiseptic and not as a styptic.—*Amer. Journal Obstetrics.*

Tetanus after Ovariotomy.—Dr. Parvin, of Indianapolis, reported a case to the same meeting. Nothing special was noticed either in the history of the case, or in the operation. On account of the adhesions about two inches of omentum were removed. The pedicle was secured by a clamp. Patient left, after the operation, in about as good condition as usual. Progress for four days was encouraging; pulse 96, temperature normal, appetite good, and passing urine voluntarily. Abdominal stitches removed, except those securing the pedicle. On the fifth day, pulse 100, tetanus appeared first by pain and stiffness in the neck and some rigidity of the muscles of the face, and the patient died on the following day.

He had made diligent search, and had found only eight cases of the kind recorded, his own being the first recorded in the United States. Since he arrived in Boston he heard that Dr. Kimball, of Lowell, had had a case of the kind, which made the ninth. The pathology, therapeutics, and prophylaxis of tetanus presented a great gap, which future medicine would doubtless fill.

Dr. Kimball related the particulars of his case; and Dr. Chadwick, of Boston, referred to a case in which tetanus occurred after he had extirpated the uterus for the removal of a large fibroid.—*Amer. Journal Obstetrics.*

How Long Ought Women to Stay in Bed after Dlivery. Dr. H. J. Garrigues read a valuable paper on this subject at a meeting of the Medical Society of the County of Kings, N. Y., in September. Dr. Garrigues dissents from the positions taken by Goodell, of the Philadelphia Preston Retreat, recently published in the American supplement to the *Obstetrical Journal*, both on theoretical and practical grounds. Dr. Goodell, it will be remembered, holds the view, that labor being a physiological process, it should not be made to wear the livery of disease, and that under circumstances fairly favorable, the patient should be encouraged to get up and dress herself on the third or fourth day after delivery. His reasons are, that the upright posture excites the womb to contract; that uterine diseases scarcely exist among races whose women leave their beds early; and that his own experience has showed him that convalescence is rendered far more prompt and sure.

After discussing the literature of the subject, Dr. Garrigues cites the exact investigations of a number of authors as to the weight and dimensions of the womb immediately after delivery, and the relative rapidity with which the organ resumes its normal weight, dimensions, and position. It appears from Bœmer, who has measured in sixty-four cases, that immediately after the event the length of the organ varies from twelve to nineteen centimeters, (3½ to 4½ inches), and that at the expiration of two weeks the womb is still from nine to twelve centimeters long, the length of cavity in the non-puerperal state being only six to seven centimeters. The width of the organ at the examination was ten centimeters, and its elevation above the symphisis pubis eleven centimeters. The elevation diminished during the first twelve days to 5.2; but on the twenty-second day it was still 4.6, whereas the normal elevation is only three centimeters. Heschl's data as to weight are even more significant. The organ, according to Heschl, weighs from twenty-two to twenty-four ounces immediately after parturition; at the end of the first week, from nineteen to twenty-one ounces; at the end of the second week, from ten to eleven ounces; at the end of the third, from five to seven ounces; its normal weight of from one and a half to two ounces being arrived at only by slow reduction, at the end of the second month. Again the formation of a new mucous lining of the organ never before the third or fourth week, and the regeneration of that tissue is often delayed considerably longer than that; not being finished, according to M. Robin, until sixty or seventy days after the delivery.

Dr. Garrigues gives a short but very comprehensive summary of this and other physiological processes, and argues from all the data collected by modern research, that the sitting posture is apt to produce alterations in the shape and position of the womb, which hinder free circulation and disturb its involution, to say nothing of tending to form emboli—a frequent cause of death after parturition as well as secondary hæmorrhage. The time that a woman should stay in bed cannot, he concludes both from physiology and from practical observation, be limited by any prescribed number of days, but must depend upon the rapidity of the shrinkage in weight and dimensions, and of the regeneration of the mucous membrane in each particular case, and these points the practitioner must determine by daily examination. His rule is not to permit a patient to get up until the womb has retired from the abdominal wall, and subsided behind the symphisis, which in most cases takes place about two weeks from the date of delivery.—*N. Y. Medical Record.*

PROF. BARKER ON THE USE OF THE OBSTETRIC FORCEPS.—Prof. Fordyce Barker recently presented a new forceps by Tanier, with remarks to the New York Academy of Medicine, which brings up the present views of Obstetricians, with a brief outline of the progressive change which has taken place in obstetric teaching since the early part of the present century.

As was well known, early teaching was to the effect that the forceps should not be used, except under circumstances where it became conclusive that without the instrument delivery of the woman could not be effected. Subsequent teachers favored its use much more frequently, but they were so laden with former prejudices against the use of the instrument, that they fell but little short of the teachings of their predecessors. The instrument was regarded as one of great danger, and that opinion was instilled into the minds of pupils. By comparing statistics, judgment could be formed regarding the effect of these teachings.

Of the older teachers and writers, Ramsbotham used the forceps only in one out of 792 cases; Clark, one out of 742; Collins, one in 717; Churchill, one in 546; Beatty, one in 139.

Among the later writers and teachers, Nægele employed the instrument once in 31 cases; Carus, one in 14; Hamilton, of Scotland, one in 7; and George Johnson, one in 11⅛ cases, and as he regarded with a great saving to both mother and child.

These were the reasons why the celebrated men, who operated in the early part of the century, entertained such horror of obstetric forceps:

1. They were entirely ignorant of the mechanism of labor.

2. While they greatly exaggerated the dangers, both to mother and child from the use of the forceps, they did not recognize the danger which results to both child and mother by prolonged labor.

3. They confounded the difficulty and skill demanded in their use in the comparative few cases in which the instrument was required, when the head of the child was at or above the superior strait, with the very many cases in which we now use the instrument when the head is in the cavity, or at the outlet of the pelvis.

The causes which had contributed to effect a change in opinion and practice had been, *first*, a knowledge of the mechanism of labor; *second*, a paper contributed by Beatty, of Dublin, in 1829. Previous to that date it had been stated that for forty years the forceps were almost never used in that country, owing to the great influence of older teachings in obstetrics. Dr. Beatty produced his paper in which was the statement that he had employed the forceps in 105 cases, without a single fatal result to the mother, or a single death to the child, that could be ascribed to the instrument.

Next came a paper from Sir James Y. Simpson, who demonstrated that both maternal and infantile mortality increased in a direct ratio, with the increased duration of labor.

Subsequent to the publication of Dr. Simpson's paper, Dr. Barker read a paper before the Medical Society of the State of New York, on the use of the forceps, which was published in their volume for the year 1858, at the time the paper was severely criticised, but Dr. Barker believed it would not receive the same criticism at the present day.

Reference was then made to various publications since the year 1860, but perhaps the most remarkable was the last report of Dr. George Johnson, of Dublin, master of the Rotunda Lying-in Asylum. It should be recollected that one of Dr. Johnson's predecessors employed the instrument only once in 742 cases; another only once in 617 cases; and one of these predecessors had said that he had never resorted to its use in private practice. They had, however, employed the perforator, 141 and 149 times. Dr. Johnson reported that he resorted to the forceps once in 11$\frac{1}{8}$ cases, and in all the cases of labor which had been in the institution he had used the perforator only three times.

Dr. Barker further remarked that the plain practical question to be settled in every case was: Which is safer for mother and child, to use the forceps, or permit further delay in the completion of labor?

The danger in the use of forceps to both mother and child was to be considered with reference to two points: *First*, with reference to the danger when the head was in the cavity; and *second*, the danger when the head was at, or above the superior strait.

In the hands of an obstetrician who thoroughly understood the mechanism of labor, who had proper instruments, and who operated only in appropriate cases—those in which there was no disproportion between the fœtal head and the diameters of the pelvis through which it must pass—there could be no danger in the use of the forceps. There could be danger, only when there was such disproportion as required such compression of portions of the cranium of the child, as to produce intercranial lesions, or injury to the mother by violent pressure on the soft parts.

It was believed to be unnecessary to discuss that proposition. There was a word to be said, however, with reference to the delivery of the head, when in the cavity, or at the outlet of the pelvis, in order to prevent laceration of the perineum. The question might with propriety be asked, is not the forceps a dangerous instrument because of the tendency to produce laceration of the perineum? Dr. Barker's own answer to that question, was that the forceps when properly used, was an instrument calculated to preserve, rather than rupture the perineum. The result depended properly upon the manner in which the instrument was used. If the valve was found so narrow that the head could not pass without producing laceration, of course rupture of the perineum would occur, even though unaided by art. Again, laceration was very much increased by long continued pressure of the head of the child against the soft parts of the mother. Dr. Barker's own practice was, when the valve became fully dilated, to remove the forceps and then introduce the fingers into the rectum, pull the head forward and deliver. He never completed the delivery by rapid removal of the head through the outlet. Used in that manner, it was believed that the forceps preserved rather than destroyed the perineum. During an experience of twenty-five years Dr. Barker had never had laceration of the perineum in his private practice, from the use of the forceps, occur to such an extent as to require subsequent surgical treatment.

Secondly, with reference to danger to mother and child from the use of the forceps when the fœtal head was at, or above the superior strait. The danger in that instance was from too violent pressure of the head of the child, or from making traction in the wrong direction, or from compression of the soft parts of the mother.

The question to be considered is, whether the safety of the mother and child was not greatly increased by early delivery than following the teaching of the old writers who never used the long forceps, but always resorted to the perforator and craniotomy, thereby inevitably sacrificing the life of the child. There were three essential points to be considered with reference to delivery from the superior strait:

1. The operator should thoroughly comprehend the cause which made the operation necessary.

2. The mechanism for overcoming that cause should be thoroughly understood. The operator should know perfectly what the relation was, between the diameters of the fœtal head and the diameters of the pelvis through which it was to pass, in order that he might know how and when to make the diameter of one correspond with the diameters of the other.

3. The operation should be performed slowly, one-half hour was the least time that should be occupied in bringing the head down from the superior strait.

Finally, in safe delivery from the superior strait very much depended upon the instrument employed. Dr. Barker ordinarily employed Simpson's forceps. He rarely used the short forceps. In cases in which there was required simply a slight increase of force, when the head is just at the outlet, the forceps were sometimes used to save the woman from two or three hours of suffering, and were applied without change of position, and often without suspicion on the part of the patient that the instrument was being employed.

Dr. Barker then made brief allusion to the history of the forceps, and came to the description of a new instrument devised by M. Tanier, of Maternty Hospital, Paris. It was claimed by the inventor that this instrument accomplished three things:

1. It enabled the operator always to make traction in the direction of the axis of the different straits.

2. It allowed the fœtal head such mobility that it might take

the direction it would normally take in passing through the pelvic cavity without the use of any instrument.

3. It furnishes a guide which showed the operator in what direction traction should be made to correspond to the axis of the pelvis.

Dr. Barker then described the principle on which the forceps was constructed. The theory was briefly as follows: When the head of the child was at, or above the superior strait, it was impossible to make traction with the forceps in ordinary use, in the exact axis of that strait, because of the resistance offered by the perineum. It was necessary to make traction in a line somewhat forward of the exact axis of the strait; hence a certain amount of force was wasted against the posterior surface of the symphisis pubis. In Tanier's instrument this was obviated by a curve in the handle, which permitted traction to be made in the axis of the superior strait without making undue pressure backward on the soft parts.

Traction was made by means of independent rods which were attached to the posterior border of the blades of the instrument and terminated in a cross-bar just beyond the handles. The instrument was adjusted in the ordinary manner; the blades locked and fastened, and the handle contained a mechanical arrangement for regulating the amount of compression brought to bear on the head of the child. To this part of the forceps Dr. Barker objected, because he believed that the degree of compression should always be under the immediate control of an intelligent hand.

Now, when the instrument was applied to the fœtal head at the superior strait, traction was first made backwards and downwards, but as the head approached the cavity of the pelvis, the handle of the forceps began to rise, thus indicating in what direction traction should be made to correspond to the axis of the pelvis through which the fœtal head was passing. As the handles arose the tractor was brought up to it, and so we had an automatic indicator which gave *direction* to the force of the operator. The instrument was strong, and that was regarded as an argument in its favor, for it was claimed as an axiom that within certain limits in the obstetric forceps, *power was safety, and feebleness was danger.*

Prof. James P. White, of Buffalo, was present and made interesting remarks, as did also Prof. W. T. Lusk; but these gentlemen were not disposed to favor the claims of Tanier's instrument. *N. Y. Medical Record.*

DILATATION OF THE CERVIX UTERI FOR THE ARREST OF UTERINE HEMORRHAGE. —Dr. Geo. H. Lyman, of Boston, read a paper on the above subject before the last meeting of the American Gynecological Society at Boston. He presented the claims of dilatation of the cervix uteri as a means for arresting uterine hæmorrhage, and relates cases in which the means had been adopted with advantage. The dilatation had been performed for purposes of diagnosis, and so marked had been the relief from the hæmorrhage which had been the alarming symptom, that special attention had been aroused to the dilatation as a means for its arrest.

The first case was that in which there was a small fibroid on the upper part of the cervix; it had been attended by profuse and frequent hæmorrhages. Dilatation by means of a tent was followed by immediate subsidence of the hæmorrhage, and the subsidence continued for several months.

The second case was one of metrorrhagia occurring in a woman 28 years of age, and in whom no deviation from the normal condition in the uterus could be found. She was liable at all times to sudden gushes of blood. Dilatation was followed by immediate relief; her periods became regular and the flow normal. A number of additional cases were given, in all of which the control of assocaited hæmorrhage was more or less complete.

The theory of Dr. Lyman with regard to the operation was, that it removed the constriction at the internal os, consequently removed the congestion of the tissues above that part. The suggestion was thrown out had we not been too ready to substitute cause for effect, and was not the hyperplasia of the lining membrane of the uterus, etc., the consequence of strangulation of the cervical vessels by a moderate constriction of the circular fibres of the cervix, and with the removal of the one, relief would come to the other?

Drs. Storer, of Boston, Wilson, of Baltimore, Smith, of Philadelphia, and others, remarked that the suggestions of Dr. Lyman were very rational, and gave cases confirming his views, that hæmorrhage from the uterine cavity had been repeatedly arrested by the use of tents.

Dr. Trenholme, of Montreal, referred to a case of hæmorrhage dependent upon the presence of a fibroid situated so low down that that it was impossible to use a tent. In that case hæmorrhage was relieved by free incision of the neck, accomplishing the same purpose as dilatation, namely: removal of the constriction.—*American Journal of Obstetrics.*

THE PRINCIPLES OF GYNECOLOGICAL SURGERY APPLIED TO OBSTETRICAL OPERATIONS.—Dr. A. J. C. Skene, of Brooklyn, read a paper upon the above subject, in which reference was first made to a communication formerly published in the *American Journal of Obstetrics*, calling attention to the facility with which craniotomy could be performed by the aid of Sim's Speculum.

Attention was also directed to the aid that could be afforded by the use of the speculum in applying Dr. Thomas's method of treating prolapsus of the funis. A case was related in which the cord was pushed back by means of sponges, held in long holders, through the speculum, and with greater ease and better results than when the cord was reduced in the manner recommended and ordinarily employed. He suggested the use of the same means in the treatment of arm presentations—pushing the presenting part back by means of sponges through a speculum.

Reference was made to cases in which Barnes's dilators were introduced with more than ordinary facility by the aid of the speculum. The doctor had elsewhere called attention to the use of the speculum in the introduction of the tampon, and also, in the removal of an ovum with the scoop and currette in retarded abortion. The difference in the difficulty of operating through the speculum in the management of such cases, when compared with the other methods, was so marked that any one who had tried the former, would hardly be induced to resort to the latter.—*Amer. Jour. Obstet.* Report of American Gynecological Society.

Proceedings of Societies.

TRANSACTIONS OF THE FOUNTAIN COUNTY (IND.), MEDICAL SOCIETY.

(Third Annual Session).

Reported for the LANCET AND OBSERVER by T. F. LEECH, M. D.,
Attica, Indiana.

MORNING SESSION.

The third annual session of the Fountain County Medical Society convened in Nixon's Hall, in Veedersburg, Thursday morning, April 4th, 1878, and was called to order at half past nine o'clock by Dr. Geo. C. Hays, the president of the society.

The roll was ordered called, which indicated the following officers, members and visitors present:

Dr. Geo. C. Hays, President; Dr. T. F. Leech, Secretary; and Dr. W. C. Cole, Treasurer.

Drs. C. N. Jones, Wesley Armstrong, G. S. Jones, J. W. Mock, J. N. Spinnings, L. D. Lyons, B. L. Petro, E. M. Fine, J. W. Quinn, and L. P. Armstrong, members.

Dr. T. M. Stevens, of Indianapolis, and Dr. S. J. Irwin, of Crawfordsville, visitors.

On motion Drs. Stevens and Irwin were invited to sit as members, and participate in the discussions of the day.

Dr. C. N. Jones called the attention of the society to a published cure of the opium habit, by Dr. Wesley Armstrong, one of the members. The doctor stated that the article referred to was published without his knowledge, and he introduced the patient, a Mr. Miller, who corroborated the doctor's statement.

It was moved that Dr. Wesley Armstrong be exonerated from blame in the matter. Carried.

The election of officers was made the order of business for one o'clock P. M., and the President's address to immediately follow the election of officers.

Dr. S. J. Irwin introduced a patient with necrosis of lower third of left fibula, who he had requested to be present at this meeting for examination. An operation was advised, but deferred to some more convenient time.

It was moved and seconded that Dr. L. D. Lyons be authorized to receive the books of the Fountain and Warren Medical Society and turn them over to the secretary of this society.

Dr. S. J. Irwin read a paper upon "State medicine," in which he advocated liberal views, and strongly endorsed Dr. J. Marion Sims' reference to the Code of Ethics, in his address before the American Medical Association, in 1876 at Philadelphia.

Dr. T. M. Stevens addressed the society at length, giving his views upon a favorite subject, "State Boards of Health." His plan of having a State Board of Health, composed of scientific men of different professions, and separate and distinct from it a Medical Commission for each leading School of Medicine, who shall say who is qualified to practice their system, was fully endorsed by the society.

Dr. G. C. Hays read a paper, by request of its author, entitled, "Medical Notes upon Tuberculosis," written by Dr. Wesley Armstrong.

Dr. W. C. Cole read the paper of the day, entitled, "A Short Study of Nineteen Cases of Abdominal Typhus." See page 438.

Adjourned for dinner.

AFTERNOON SESSION.

The society met at one o'clock. President Hays in the chair.

Dr. C. V. Jones stated that it had become notorious that our secretary, Dr. T. F. Leech was violating the fee bill by undercharging. Dr. Cole reiterated the statement, and Dr. L. D. Lyons re-reiterated it.

Dr. Leech said he desired the gentlemen to reduce their grievance to writing, and let it come up in the regular order so he would know what he had to meet, and all he asked was, that "he that is without sin among you, let him first cast a stone."

The matter was referred to the Judiciary Committee.

The election of officers for the ensuing year resulted as follows:

President—Dr. G. S. Jones, Covington.

Secretary—Dr. T. F. Leech, Attica.

Treasurer—Dr. W. C. Cole, Attica.

Censors—Drs. G. C. Hays, Wesley Armstrong, and J. W. Mock.

Delegates to the American Medical Association—Drs. G. S. Jones and T. F. Leech. *Alternates*—Drs. C. V. Jones and L. D. Lyons.

Delegates to the Indiana State Medical Society—Drs. J. W. Quinn, B. L. Petro, J. W. Mock, and Wesley Armstrong. *Alternates*—Drs. G. C. Hays, W. C. Cole and L. P. Armstrong.

The secretary offered the following:

Resolved, That the Fountain County Medical Society congratulate the Allen County Medical Society upon their success in having been the means of settling the question as to the fees of medical experts being paid before they can be forced to testify in Courts, in cases where their "opinions" alone are required. Carried.

The subject of the president's address was, "Pressure upon the Perineum during Labor."

The committee on State Medicine reported the following:

Resolved, That the Fountain County Medical Society recommend to the State Society that they appoint a Health Commission, whose duty it shall be to make investigation as to the cause of disease in the State, and devise means to be used to prevent such.

Resolved, That the Fountain County Medical Society recommend to the State Medical Society the appointment of a committee, whose duty it shall be to perfect a plan for the regulation of practitioners of medicine in the State of Indiana, and that such plan shall be upon the basis of representation upon any such Board so empowered, of all sects and classes of physicians in the State.

Resolved, That the secretary of this society be instructed to forward a copy of these resolutions to the secretary of the Indiana State Medical Society, and also, a copy to Dr. T. M. Stevens, Indianapolis.

Dr. T. M. Stevens made some valuable remarks upon Sanitary Science.

The secretary reported the membership of the Fountain County Medical Society to be twenty.

A general discussion of the paper read to-day was participated in by nearly all the members present.

It was moved and seconded that when this society adjourns, that it adjourns to meet at Veedersburg, on *the third Wednesday in June* 1878. Carried.

Dr. T. F. Leech reported a case of Encephaloid Cancer of the Mammary Gland removed four weeks ago, which had recurred upon the inner margin of the cicatrice, and attained the size of a child's fist. He said he would remove it again to-morrow and report the case at next meeting.

Dr. C. V. Jones reported a case of Pott's disease, treated by Dr. L. A. Sayres method.

Dr. G. S. Jones moved a vote of thanks to Drs. Stevens and Irwin for their presence and assistance at this meeting, and invited them to come to our future meetings. Carried.

Notice was given that the following papers would be read at next meeting:

"Hæmorrhages, and their Treatment"—Dr. J. W. Mock.

"Tuberculosis," continued—Dr. Wesley Armstrong.

"Is Meddlesome Midwifery Bad?"—Dr. C. V. Jones.

It was ordered that a copy of the proceedings of this meeting be forwarded to the LANCET AND OBSERVER for publication.

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Correspondence.

132 BARR ST., CINCINNATI,
APRIL 1, 1878.

J. C. CULBERTSON, M. D., Editor LANCET AND OBSERVER.

Dear Sir :—In a recent conversation with you upon some of the relations of the medical profession to the public I gave an opinion that such relations are grossly misunderstood, and always will be, until our code of ethics shall be so construed as to allow us all honorable means of defense and of diffusing a kind of knowledge now kept wholly sealed within medical books. With your permission I will put some of these matters into more definite shape and submit them to any criticism they may deserve.

Let me say, first, that I would not be understood as favoring the *indiscriminate* teaching of all anatomical and physiological truths. Far frrom it. Neither am I disposed to encourage quackery in any form.

It is a sad fact, a fact that has a very sad influence upon both the profession and the public, that the great mass of the people, both the ignorant and the educated, know little or nothing, nay often worse than nothing of the physical and moral conditions of health and the care of the sick. I speak deliberately when I say, *often worse than nothing*, because almost all the instruction the public receives is from the mouths of designing pretenders who teach falsehood with all the fearless affrontery for which they are noted. Regular physicians in honorable professional standing seem generally to regard our Code of Ethics as opposed to the spread of medical knowledge outside of the profession. This interpretation in my opinion, is radically wrong. It is a relic of the dark ages and fit only to be a thing of the past. To it more than to anything else, we may attribute the deplorable state of public sentiment just mentioned. While the honest physician, zealous and careful of the honor of his profession, adheres religiously to a literal rendering of his time honored code, and so says nothing to a public eager to know, the untrammeled, unrestricted charlatan quacks his knowledge and pretended knowledge in every variety of villainous proportions on every street and cow-path. Given, this state of affairs for one or a few generations, what will be the final influence upon public sentiment? Manifestly an array of two opposite extremes of sentiment. The one a skeptic disbelief in all medication; the other a credulous eagerness to accept anything and everything however absurd! This is not a fanciful picture. Already do we see very large factions of public opinion siding with these extremes. If we would maintain the true and honorable middle ground we must either *educate the people in truth*, or else *prohibit the present lawless diffusion of falsehood.* But the latter alternative is probably impossible, and if so *the former is the only course.* Our profession, the public and truth are all bound to suffer still more and more if we do not rise up and *act* in their defence by teaching and demonstrating to the public, *the things that are true.* But how is this to be done? Very little can be effected by any *one* means. It is by attentive observance of all the many little opportunities turning up in the course of a medical practice. Words of instruction dropped at favorable moments, and simple demonstrations of anatomical relations or physiological truths when suitable opportunities occur must ultimately accumulate a powerful influence for good. The physician's duty is a double one that does not include self only. Leaving duty entirely out of the question, it is but a short-sighted policy that allows ignorance to breed misery, pestilence and death where these could be prevented. Let us teach the people how to be on guard against disease and how to care for the sick. Let us teach them how to discriminate between truth and falsehood. Let them know that those who *profess* one kind of practice and treat their patients by another are, by decision of the courts, held justly liable for damages; that there are two kinds of *pretenders* preying upon the public credulity, pretenders to knowledge and pretenders to some special system, method or means of cure, and that the courts are ready to make both these classes pay for the suffering, and limbs and lives of their victims. Let some of this come home to our own ranks whenever it is deserved. Half the medical practitioners of this country are too ignorant for cow-doctors, and the sooner they are made to feel the fact the better for all parties. I say let us teach the people how to protect themselves against ignorance and the baneful influences of false teaching. Shall it be said that this is counselling to danger or a state of affairs worse than now exists, because lawyers are shrewd, judges fallible and juries sometimes packed with corruption? We say there are shrewd lawyers for *both* sides and if court or jury is diseased let it be cured. This is not a plea for any one school of medicine. It is a *plea for truth*, whereever and in whatever garb it may be found.

As illustrating some of the good and useful lessons we can and ought to teach let me mention some things in regard to

The Care of the Sick.

As to the question whether or not to get the services of a physician in a given case, our advice should be to let the matter of *safety* outweigh every other consideration. If after carefully considering the matter on this basis you find yourself unable to decide what to do, it will generally be best to take no active course, but rather trust to nature. If you are in reach of a regular physician, in honorable professional standing and whom you regard as an *honest* man, you will act wisely and feel better satisfied by consulting him. If I were called upon to decide between an entirely unknown disease and an entirely unknown "doctor" I would not give much for the choice. The patient is very apt to recover "in spite of either." There are instances of both that are "worse than the itch" and yet comparatively harmless.

Whom to employ is a question to be decided upon the same general principle. It is a very prevalent error to choose an attendant upon some other preference than professional merit. Select one, if possible, in whom you have *full confidence*, and then *resign the patient to the control of his judgment.* If he be wise and competent he will give no unnecessary trouble. If safety requires that friends be excluded from the sick-room he will very properly enforce such condition, but not otherwise. If he directs good company and cheerful conversation the patient must not be harrassed with bickerings or gloomy foreboding. Should cheerful compliance with directions be found difficult or impossible, let the doctor be called aside and questioned as to his motive. If he be a competent gentleman he will take it kindly and explain all satisfactorily.

The temperature of the sick-room is a matter upon which some difference of opinion exists. That this is so is evidence that considerable range of temperature is admissible. As a *general* rule from 65° to 75° F. is preferable, but a better general rule is to consult the comfort of the patient. If he suffers from heat, cool him off; if he is too cold, warm him. Avoid very prolonged exposure to high temperatures, and sudden changes from heat to cold except in conditions of hot, dry fever. Again we say let the temperature be that most agreeable to the patient. Even in measles and other eruptive fevers this rule may be followed with comfort if not carried to excess.

Pure Air.

An atmosphere may be pure and yet not cold. The large majority of dwellings are so constructed that pure air of comfortable temperature in cold weather, is next to impossible. To this fact must be attributed, as I believe most cases of lung disease, including even the active stages of hereditary consumption. Let me be understood to mean that if those who inherit this disease were kept always in perfect atmospheric conditions, the predisposition would in a few generations at most entirely disappear; and further, that habitual confinement of the most healthy to a badly vitiated atmosphere will and does breed this most insidious of ills. It is most strange that although overwhelming evidence upon these points can be produced, and although "everybody" knows the general truths that form the basis of the statement I have made, yet there is a general belief that little or nothing can be done to oppose this disease. And yet it is well known that when once fully developed in its active stage it is very seldom if ever entirely arrested. If the reader will excuse a further digression for a moment I would mention that though the word cure means literally, to care for or take care of, it is generally used in the very different sense of eradicate; so that those who advertise to "cure consumption" intend to convey the latter meaning, and are pretenders. But it should be equally well known that those who enforce proper sanitary conditions and administer the best known remedies prolong and better the lives of those under their care.

Such and similar lessons, illustrating the value of pure air we should always be ready to teach on suitable occasions. Possibly some antediluvian brother might call it a species of quackery. If so, it is a kind of quackery of which the more the world has the better off it is. *Let us teach the principles and art of ventilation.* If the healthy need the pure air how much more so those who are sick.

Water.

In nothing else do we see more fully exemplified the rationalism of modern medicine than in the allowance of water to the sick. Forty years ago the sick man, burning with fever cried continually for "water! *water!* WATER!" He was allowed a few drops "with the chill taken off." To-day we place even the ice-cold goblet to his lips and bid him "drink! *drink!* DRINK!" We make him happy for a time, perspiration starts perhaps and he falls into a few moments of comparative comfort. If much water provoke vomiting or intestinal trouble we give him lumps of ice to eat, so as to make up in coldness what is lacking in quantity. Are we to teach that it is safe to allow cold water after all kinds of medicine? As a rule, yes. It is doubtful if it is ever necessary to give a medicine that may not be followed by its use. There is one general rule in regard to the *quantity* of water admissible, a rule that has never in my experience been other than reliable. Allow as much as may be desired provided sweating follows and no stomach or bowel trouble is produced. I have given a patient as many as eleven common sized tumblerfuls of fresh well-water, in less than fifteen minutes and that too with most salutary effect. I do not mention this to advise such quantities but to illustrate what may be done in certain circumstances. The best guide as to its *temperature* is the choice of the patient.

The subject of *diet* is one that requires a volume rather than the closing paragraphs of a letter that has already attained an unexpected length. We must leave it until another time, merely remarking that the difference between food and medicine is often more in name than in general nature, and that the prevailing tendency of sound medical advice is to satisfy the cravings of natural appetite and the demands of the system for wholesome, nourishing food.

Physicians are often severely blamed for what the public calls deception. It should be our aim to cure *surely*, *quickly* and *pleasantly*. In serious cases the first of these is manifestly first in importance. In trivial ailments perhaps the last may be excused for taking precedence. However this may be, the doctor's duty is not first to make *himself agreeable* but to make *his patient better.* If to do this requires him to practice deception he should not hesitate to do it. If he knows his patient is bound to die, it is his plain duty to *keep him alive as long as possible.* It is very seldom indeed, if ever, that he is justified in telling him that his days are numbered and he has just so many days or hours or minutes to live. I doubt whether it could ever do any possible good and it is positively sure that in the great majority of cases it hastens the end. The M. D. works *for time* when his charge is sick; let the D. D. work for eternity when his charge is well.

We are also charged with being *unfeeling*, even *cruel.* No doubt some are or become so; but generally it is apparent rather than real. The conditions or circumstances complained of are generally matters of necessity. In well regulated hospitals visitors are either wholly excluded or else admitted at suitably restricted times. The influence of such restrictions is usually good. Dr. C. A. Hough, in speaking of these influences in The Cincinnati Hospital says: "The influence of visiting day is generally bad; the patients at the close of the two hours visiting time being much wearied. This applies more particularly to the acute cases. Visits of the clergy are not always beneficial; those of the more cheerful-looking ones being most so."

It has been often unfairly said that we earn our prosperity by the misfortunes of our fellows. Not so: to be healed of a disorder is not a misfortune; and if we kill instead of cure, the courts are ready to make it "all right." We never hear of lawyers being sued and mulct in damages for malpractice nor ministers made to pay for false doctrine. We are a *peculiarly* favored profession, entirely at the mercy of frail humanity. We have no redress for many grievances of which the rest of humanity knows nothing. The laws that secure to other men, "life liberty and the pursuit of happiness," in many cases deny the same to us. Let us insist upon it, not only as a right but as a duty, to make common cause of one object, and that is *to have ourselves understood by the people.*

Yours truly,

J. B. HOUGH.

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Editorial.

DR. T. C. MINOR.—We take pleasure in announcing the appointment of this gentleman to the position of Health Officer of Cincinnati. Dr. Minor is well known to the medical profession through his frequent and valuable contributions to the pages of the LANCET AND OBSERVER. Contributions from him on Sanitary subjects will hereafter regularly appear in this journal.

The respective Boards of Health that have existed in Cincinnati from time to time, have been singularly fortunate in the selection of an executive officer. Drs. Clendenin, Quinn, Kearney, and Minor are all men of superior worth and standing in their profession, and as city health officers and sanitarians are deserving of high honor. We have good reason to believe that their special labors, (Dr. Minor served three years as member of the Board of Health), during the last twelve years have prevented a great amount of disease and consequent high rate of mortality. Such eminent public service is rarely appreciated and seldom rewarded.

WE ARE also glad to announce that Dr. D. A. Morse, our regular contributor on the subject of mental and nervous diseases, has been appointed to the superintendency of the Dayton, Ohio, Hospital for the Insane.

Lightning does sometimes strike the right men in the shape of appointments to responsible public positions. Per contra, the newly appointed Board of Trustees of the Central Asylum at Columbus have proceeded to re-organize the management of that institution in a manner that indicates their incompetency and gross ignorance of the duties that pertain to the responsible position they have been called to fill. Dismissing Dr. Gundry, the superintendent, a gentleman widely and well known as an experienced alienist, and eminent for his ability in the conduct and management of insane hospitals. The sole cause of his removal being: that he was not an active worker in the dominant political party.

The aforesaid trustees, newly clothed with the mantle of authority, at once issued their mandate of removal and appointed a most respectable practitioner of the proper political persuasion to the position of superintendent. The gentleman presented himself to the board, accepted the appointment, and presumed to nominate a lady, whom he believed to be well qualified for the position of matron. Such arrogance could not be permitted by the assembled wisdom of the new board, and he was at once rebuked, whereupon his resignation was tendered. We congratulate Dr. Ellsbury for his display of independent manhood and self respect. The position of superintendent was then tendered to Dr. Firestone, of Wooster, who at once declined the office. At this writing the place is vacant.

We have no personal knowledge of any of the members of the Board of Trustees of the Central Asylum, and regret to feel called upon to criticise their ideas of managing a lunatic asylum. Experienced psychologists are not abundant, nor are they graduated every year from the numerous medical colleges, nor will the policy of reorganizing the various benevolent institutions of the State whenever there is a change of political power, have a tendency to increase the number of men who are qualified by special study to fill the responsible position of insane hospital superintendents.

With the adoption of such a policy, we will see the asylums managed and governed by men who have seen the "boys," and can control the vote of a ward delegation. A capacity to drink beer, and to act as judge at the township polls, will be the special qualifications sought for in the applicant for position.

THE JOURNAL OF PHYSIOLOGY. We have received the prospectus of this Journal, which is to be published in parts, not at rigidly fixed times but according to supply of material. It is to appear as nearly simultaneously as is possible in America and England.

Dr. Michael Foster is the Editor and has as associates, Gamgee, Rutherford, and Burdon Sanderson in Great Britain; Bowditch of Boston and H. N. Martin, of Baltimore, in America. From the prospectus and from the standing of the Editorial Staff, a Journal of very high literary and scientific excellence may be looked for.

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Reviews and Notices.

The Popular Science Monthly for May. The May number of "The Popular Science Monthly, commencing its thirteenth volume, opens with an article of remarkable interest, by Prof. J. P. Cooke, Jr., of Cambridge, on "The Radiometer: a Fresh Evidence of a Molecular Universe."

Prof. Cooke brings out to view that there is a molecular cosmos, as orderly and beautiful as the stellar cosmos, and shows impressively how the operations of Nature are but aggregated results of the wonderful interactions among the invisible atoms of which all matter is composed. The next article, "Personal Reminiscences of some Deceased Savants," by Carl Vogt, is a pleasant, sketchy description of a few of the leading characteristics of the four eminent French scientists, Leverrier, Becquerel, Regnault, and Bernard.. The next paper is the fourth of Herbert Spencer's interestting series, on the "evolution of Ceremonial Government." It treats of "Presents," and shows, with great wealth, a new illustration, how gift-making, as a form of ceremonial, attains its highest development among the most militant societies, and how from a voluntary practice, caused by a desire to propitiate those in power, it passes into compulsory tribute, and takes the form of political and ecclesiastical taxation. "How Sound and Words are produced," by George M. Shaw, is an illustrated article on the mechanics and dynamics of talking, singing, and hearing, and is very opportune just now, when there is so much interest in telephones and phonographs. The next paper is the first part of a very important discussion, by Dr. George M. Beard, on "The Scientific Study of Human Testimony." This paper contains some new and striking views of very great practical importance, and deserves to be carefully and extensively read. Prof. Thurston discourses of "The Steam-Engine of the Future, and its Builder;" and Mr. N. J. Gates makes an essay to find out the essential limits of what it is possible for man to know. An illustrated paper follows on Pictet's method of condensing and liquefying the gases. "Metric Reform," by Samuel Barnett, is a timely and readable paper on a subject of permanent interest. Mr. Barnett favors and expounds a method similar to that recently introduced into Congress by A. H. Stephens. Dr. R. S. Tracy has an interesting physiological article on the subject of "Pain in Drowning," the conclusions of which will be new to most readers. Under the title of "Science and Mental Improvement," Prof. Le Conte takes up some modern scientific doctrines and subjects them to pungent criticism. There are a portrait and sketch of Prof E. S. Morse, and copious editorials, book reviews, and miscellaneous scientific information.

Medical and Surgical Directory of Iowa. The Second Edition, for 1878, and 1879 is announced.

The Editor, Doctor Chas. H. Lathrop, of Lyons, Iowa, is doing a good work for the profession of his state in the issuing of these valuable hand books of reference. This edition will contain 200 pages of printed matter and will be sold at $1.50 per copy.

Landmarks, Medical and Surgical. By Luther Holden, F.R.C.S., etc., etc. From the Second English Edition. Philadelphia: Henry C. Lea; 1868.

This little volume of 128 pages is all that its title represents. The author points out and explains the surface marks—the eminences, depressions, and lines—of the entire body, so as to show the absolute necessity of such knowledge to the physician and surgeon. It shows the student how to put his knowledge into practice, by making the eye and hand work together; and, as the author remarks in his preface, "to educate the *touch* upon the normal, living body." It is one of the most useful and practical little books of this book-making age.

A Guide to Therapeutics and Materia Medica. By Robert Farquharson, M. D., Edinburgh; F. R. C. P., London. Enlarged and adopted to the U. S. Pharmacopœia by Frank Woodbury, M. D. Published by Henry C. Lea, Philadelphia; 1877.

One of the peculiarities of the present decade is the study of medicinal agents from a strictly physiological standpoint. The work before us is among the best from this class of writers. The author learnedly points out the many physiological considerations involved in the actions and uses of medicines. The physiological action, and the therapeutical effects of each medicinal agent, are put in contrast in separate columns, on the same page, and thus more readily compared and studied—an arrangement which will enable the physician to deduce more precise laws of prescribing. Under the head of "Dose and Mode of Administration," numerous and convenient formulæ are given which will be found of great advantage, to the young physician especially. We confidently recommend this volume, as it is all its modest title claims for it.

State Regulation of Vice. Regulation Efforts in America. The Geneva Congress. By Aaron M. Powell. Wood & Holbrook, Publishers, New York; 1878.

The author gives a partial and interesting resumé of the various efforts made to grapple the "social evil," and vice in general, by the various states of the Union, particularly in the several cities. The writer's account of the origin, character, organization and conclusions of the Geneva Congress will be found of interest by every one interested in the welfare of his race.

On the Uses of Wines in Health and Disease. By Francis E. Anstie, M. D., F. R. C. P. McMillan & Co., London; 1877.

The author of this little volume needs no introduction to the medical profession of America, nor is it necessary to inform the reader that his opinions, on any subject, are entitled to the highest respect. The little book before us is divided into two parts, viz: part I, "on the places of wines in the diet of ordinary life;" part II, "on the uses of wines in acute, and in chronic disease." The great object of the writer, as he informs the reader, is "to deal specially with wines as such; to show that the whole group of beverages has common properties and uses, that separate it from other alcoholic liquids."

The author's opinions as to the choice and practical use of wines will be found valuable and instructive. The author admits that the saccharine ingredient of wines increases the tendency to gout in certain persons, but he does not think that it is the *only* element in provoking the disease.

While we do not agree with the author as to the beneficial effects of wines in infancy and old age, we do heartily commend this work to the profession as one in which this important subject is treated carefully, honestly, and scientifically, by a most able writer.

AMERICAN MEDICAL ASSOCIATION.

PHILADELPHIA, 1400 PINE ST., }
S. W. CORNER BROAD. }

The Twenty-ninth Annual Session will be held in the city of Buffalo, N. Y., on Tuesday Wednesday, Thursday, and Friday, June 4, 5, 6, and 7, 1878, commencing on Tuesday at 11 A. M.

"The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies as are recognized by *representation in their respective State Societies* and from the Medical Department of the Army and Navy of the United States."

"Each State, County, and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number: *Provided*, however, that the number of delegates for any particular State, territory, county, city, or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

Secretaries of Medical Societies as above designated are earnestly requested to forward, *at once*, lists of their delegates.

Will you kindly send to the undersigned a list of your members with their residences, in order that a correct record may be made of all who are in affiliation with this body?

SECTIONS.

"The Chairmen of the several sections shall prepare and read in the general sessions of the Association, papers on the advances and discoveries of the past year in the branches of science included in their respective Sections. * * *"—BY-LAWS, Art. II., Sect. 4.

Practice of Medicine, Materia Medica, and Physiology:
Dr. A. L. LOOMIS, New York, *Chairman.*
Dr. J. H. ETHERIDGE, Chicago, Ill., *Secretary.*

Committee appointed to report to this Section, on Clinical and Meteorological Records:

Dr. N. S. DAVIS, Illinois, *Chairman.*

Obstetrics and Diseases of Women and Children:

Dr. E. W. JENKS, Detroit, Mich., *Chairman.*

Dr. H. O. MARCY, Cambridge, Mass., *Secretary.*

Surgery and Anatomy:

Dr. HENRY H. SMITH, Philadelphia, Pa., *Chairman.*

Dr. E. T. EASLEY, Little Rock, Ark., *Secretary.*

Medical Jurisprudence, Chemistry, and Psychology:

Dr. WALTER KEMPSTER, Oshkosh, Wis., *Chairman.*

Dr. E. A. HILDRETH, Wheeling, W. Va., *Secretary.*

State Medicine and Public Hygiene:

Dr. J. L. CABELL, University of Va., *Chairman.*

Dr. E. J. MARSH, Paterson, N. J., *Secretary.*

The following Committees are expected to report:

On Prize Essays:

Dr. E. M. MOORE, Buffalo, N. Y., *Chairman.*

On Necrology:

Dr. J. M. TONER, Washington, D. C., *Chairman.*

On Catalogue of National Library:

Dr. H. C. WOOD, Pa., *Chairman.*

On recommendations in President Bowditch's Address:

Dr. N. S. DAVIS, Illinois, *Chairman.*

To be acted upon:—

Change in By-Laws, proposed by Committee on Nominations in 1877.

"Under Art. II., Sections, 10th line from top, the word *Essayist* shall be introduced immediately after the word 'Chairman,' so as to read as follows: 'The Chairman, Essayist, and Secretary of the several sections shall, like other officers of the Association, be nominated, etc.'"

Same article line 22nd, *et seq.*, to read as follows: "The Chairman of the several Sections shall preside at the meetings of their respective Sections. The Essayists shall prepare and read in the general sessions of the Association papers on some subject to be selected by themselves, but relating to one or more of the branches of science included in their respective Sections; the reading of such papers not to occupy longer than forty minutes for each."

Amendment proposed by Dr. S. C. BUSEY:

Plan for Organization of the American Medical Association.

The general meetings of the Association shall be restricted to the morning sessions; and the afternoon sessions, commencing at three oclock, shall be devoted to the hearing of reports and papers, and their consideration, in the following Sections:—

1. Practical Medicine, Materia Medica, and Physiology.
2. Obstetrics and Diseases of Women and Children.
3. Surgery and Anatomy.
4. Medical Jurisprudence, Chemistry, Pcychology.
5. State Medicine and Public Hygiene.

The Sections shall be organized by selecting from the permanent membership such members as may have acquired distinction in the branches of medical science assigned to the respective Sections, such selections to be made from the roster of permanent membership next preceding the adoption of this amendment, by a committee consisting of the chairman and so many of the ex-chairmen of the respective Sections for the three years next preceding as may be present at the time of the adoption of this amendment; provided, however, that no one shall be thus made a member of more than one Section.

Only permanent members shall be eligible to membership of the Sections; and annually, as hereinafter provided, each section may elect such as may be qualified by three years' consecutive membership, and who may have acquired distinction in the branches assigned to the Section. Forfeiture of permanent membership shall forfeit membership of Sections, but such forfeiture shall not prevent a re-election.

The officers of the Section shall consist of a Chairman, Secretary, a Committee on Business, a Committee on Membership, and a Committee on Essays. The Chairman and Secretary shall be elected by a majority of the ballots cast by the members of the Section, and shall hold their offices until the close of the business of the annual meeting next succeeding their election. The committees shall be appointed by the Chairman, and hold office for one year or until their successors are appointed.

The Chairman shall preside at all the meetings of the Section, perform all the duties ordinarily pertaining to the duties of a presiding officer; shall exercise general supervision over the business of the Section; see that the duties of the officers and committees are properly discharged, and shall prepare and read, in general sessions of the Association, a paper on the advances and discoveries of the past year in the branches included in the Section; the reading of such paper shall not occupy more than forty minutes.

It shall be the duty of the Secretary to keep a correct record of the proceedings of the Section and report the same to the Permanent Secretary; to revise and correct the reports of the stenographer and deliver the same to the Committee on Essays; and to perform such other duties as may properly appertain to the office of Secretary.

The Committee on Business of each Section shall consist of three members, to be selected, when practicable, from the members residing in or near the city in which the meeting of the Association is to be held.

It shall be the duty of this Committee to prepare business for the Section and with that in view, to select two or more subjects appropriate to the section, and also to appoint from the members of the Section as many members, to each of whom a subject shall be assigned for report thereon, which report shall be prepared and submitted to the Section at the meeting next ensuing. Voluntary papers may, with the approbation of the Committee, be submitted by any member of, or delegate to the Association. All papers and reports must be sent to the Committee at least one month before the meeting, and it shall be the duty of the Committee, after careful examination, to fix the time and order of presentation, and to prepare a memorandum of the titles, together with the main points set forth in the argument, which shall be printed and distributed to the members of the Sections by the Assistant Secretary.

The Committee on Membership of each Section shall consist of five members. It shall be the duty of this Committee annually to examine the roster of permanent membership, and recommend for election to membership of the respective Sections such as may be eligible and deemed qualified. It shall also examine the roster of membership of the Section, make all necessary corrections of names and addresses, erase from the list the names of all who may have forfeited their membership, and designate the deceased members.

The Committee on Essays shall be composed of three members. To this Committee shall be referred for examination all papers read before the Section, and all debates. The Committee will be allowed thirty days, at the expiration of which time it shall forward the papers to the Committee on Publication, with such recommendation as may be deemed proper; but no paper or discussion either in whole or in part, shall be published in the Transactions without the recommendation in writing of said Committee on Essays.

The Committee of Arrangements shall provide for each Section a competent stenographer, who shall furnish the Secretary with a full verbatim report of the debates of the Section.

No member shall address the Section more than once upon the same subject, nor speak longer than fifteen minutes without unanimous consent.

The Permanent Secretary shall prepare annually a list of the members of each Section, which shall be published in the Transactions, and shall furnish each delegate with a printed plan of organization and by-laws, together with rosters of the permanent and Section membership.

Amendment proposed by Dr. T. D. Fitch:—

"Plan of Organization, Sect. II., paragraph referring to permanent members. Strike out 'and of such other members as may receive the appointment by unanimous vote, they shall continue such so long as they remain in good standing, etc.'"

Amendments proposed by Dr. N. S. Davis:—

"Strike out from By-Laws the whole of fifth paragraph, Sect. II. 'Papers appropriate to the several Sections, in order to secure consideration and action, must be sent to the Secretary of the appropriate Section at least one month before the meeting which is to act upon them. It shall be the duty of the Secretary to whom such papers are sent, to examine them with care, and, with the advice of the Chairman of his Section, to determine the time and order of their presentation, and give due notice of the same; and after their full examination and discussion by the Section, they shall be sent to the Secretary of the Association.'"

Strike out all of third paragraph, Section VIII. "It shall be the duty of every member of this Association, who learns that any existing medical school departs from the published conditions of graduation, to report the fact at the annual meetings; and, on proof of the fact, such school shall be deprived of its representation in this body."

Strike out all of second paragraph, Section IX., "This Association recognizes as a 'regular organized' medical college one that has been represented at any meeting, and that complies with the rules and directions found in the published *Transactions*, vol. xiii. page 33."

Amendment offered by Dr. X. C. Scott, and others:—

> "Add to the five existing Sections a Section for Ophthalmology, Otology, and Laryngology which shall be known and designated as Section 6."

It is probable that several railroads will carry delegates to Buffalo and return for one and one-third fare. Such roads as agree so to do will be announced in the Journals.

WM. B. ATKINSON, M. D.,
Permanent Secretary.

WARNER AND CO.'S PHOSPHORUS PILLS.—We have, through the courtesy of Messrs. Warner and Co., received a sample lot of their pills, containing phosphorus in various combinations. The mass is soft, has the odor of phosphorus, is luminous in the dark, has no lumps of phosphorus, as it is combined when in solution, and, finally, it is perfectly protected from oxidation or the conversion into phosphoric acid. Mr. A. E. McLean, analytical chemist of New York, after examing the pills chemically and microscopically, reports the mass as being perfectly homogenous, not exhibiting particles of undivided phosphorus, and thoroughly protected from the oxidizing influence of the air by means of the sugar coating. He says each pill is an example of what skill, care and elegant pharmacy can do. He found them to contain $\frac{1}{25}$ grain phosphorus, as expressed on the label, and regards them as a model of perfection. The pills may be had containing phosphorus alone $\frac{1}{50}$ or $\frac{1}{100}$ grain in each, or in combination with suitable doses of cannabis indica, cantharides, nux vomica, ferri-carb., ferr-redact., strychnia, digitalis and hyoscyam, aloes and nux vomica, quinine, etc., etc. We commend these elegant preparations to the notice of our readers.

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J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

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Original Communications.

Article 1. — Spontaneous Cephalic Version. — Shoulder Presentations and their Treatment.

By J. J. QUINN, M. D., Cincinnati, Ohio.

On the 16th of July, 1865, the late Dr. H. E. Foote and myself were called upon to visit Mrs. D. in her fourth labor.

The patient was a healthy, medium-sized, well proportioned woman, about thirty-two years of age. With none of her previous labors had any difficulty occurred, having been delivered in each without the assistance of a physician, or professional midwife. This labor had been in progress fifteen hours, and the membranes had been ruptured eight hours. Upon examination, the vagina and other soft parts were found moist and lax; the os tincæ was soft and yielding, and almost fully dilated; and the right shoulder was discovered presenting in the second position, that is, the head of the child to the right iliac fossa of the mother, the feet towards the left, the anterior aspect of the body looking forward and upward, and the posterier directed backward. The diagnosis was comparatively easy, as the capacity of the pelvis and condition of the uterus readily admitted the introduction of the fingers into the axillary space, revealing its direction towards the left side of the patient. In addition the clavicle and some of the intercostal spaces could be felt looking forward, and the scapula detected posteriorly. Even the hand, which had not come down, could be reached upon the chest of the child. There was no impaction of the shoulder; nor was the uterus contracted closely or uniformly on all parts of the fœtal surface.

The propriety of turning by the feet was suggested, but my associate preferred to postpone interference until the effect of uterine contractions upon the presentation and position could be noted. In about an hour Dr. Foote, who had remained constantly at the bedside, called my attention to a change which was taking place in the position. An examination showed that the shoulder had slightly receded and moved very perceptibly from the axis towards the left side of the mother. In addition to the lateral movement there had also been a rotary motion of the body of the child, the abdomen being directed more upward. The umbilical cord was now found prolapsed, but still pulsating; and it very soon receded spontaneously above the pubis, while the circulation through it remained intact. Labor continued vigorously for two hours longer, the shoulder receding, the body rotating, the breech rising and the head descending, when the vertex entered the cavity in an oblique position with the occiput to the left sacro-iliac symphisis. In a few minutes more the woman was delivered of a full term, healthy looking, but dead child. The patient's recovery was unattended by any untoward symptom; and a subsequent labor, like her previous ones, was natural and expeditious, the delivery safe to both mother and child, and accomplished without professional aid.

Under the name of spontaneous evolution, Velpeau reports a not very dissimilar case: A young woman in her second pregnancy, entered the hospital at 10 A. M. Although the os was very little dilated, the second position of a left shoulder presentation was detected. At 3 P. M. the membranes ruptured, though the pains were neither frequent nor strong; at 8 P.M. the shoulder had very sensibly moved towards the left side; at 11 o'clock the temple had almost gained the centre of the orifice; at midnight the head had engaged; and one hour later, 1 A. M., the vertex was delivered in the second position, the occiput at the right acetabulum. No attempt was made to pull down the feet either before or after the evacuation of the liquor amnii, because, as the author says, the pains were few and feeble, and he had, besides, confidence in the statements of Denman regarding the occurrence of spontaneous evolution in shoulder presentations.

It will be observed both in the case now reported, and that of Velpeau, the head of the child was towards the right fossa, one being the second presentation of the right shoulder, the other the second of the left. In the first case the membranes ruptured seven hours after the beginning of labor; in the second, five hours after. In the former case, nine hours elapsed between the evacuation of the liquor amnii and the commencement of version; in the latter, five hours. The process of version in the one case occupied two hours; in the other, four hours. The expulsion of the child after the engagement of the head, was accomplished in a few minutes in the first case; in the second, an hour was required for delivery. The entire duration of labor in the case presented, was eighteen hours; in that given by Velpeau, fifteen hours.

The case reported has suggested to my mind some questions of interest:

1st. The facility with which the diagnosis was made.

2nd. The interval between the rupture of the membranes and the commencement of version.

3rd. The time occupied in version and expulsion.

4th. The unaided recession of the umbilical cord above the pubis.

5th. The cause of the child's death.

6th. The cause of version.

7th. Would another mode of treatment, or management, have saved the life of the child?

8th. Was reliance on spontaneous version justifiable?

9th. Would spontaneous version, or evolution, occur more frequently, if artificial aid were not afforded?

1st. *The facility with which the diagnosis was made:* Some writers classify all transverse, as shoulder presentations, maintaining that the abdomen, back and sides only indicate different varieties of the presentation of one or the other shoulder. According to many authorities the shoulder is the most dependent part in transverse presentations; according to others, this is not always the case, though it offers more frequently than any other part of the trunk. It would appear from the statistical tables of Madame Lachapelle that the right shoulder presents more frequently than the left, and that the back of the child looks more frequently forward than in any other direction; in other words, that what is called the first position of the right shoulder is of more frequent occurrence than any other position of a shoulder presentation.

Shoulder cases are not of frequent occurrence; but however infrequent, they may occur at any time, and to some obstetricians of limited experience more frequently than to others of larger fields for observation. Dr. F. H. Ramsbottom gives the case of a patient whom he attended in five labors, in four of which the presentations were transverse; and another, of a woman who had seven shoulder presentations in twelve labors. In one case the pelvis was slightly distorted; in the other, it was contracted. Physicians of much less obstetrical practice than this distinguished accoucheur have met with similar experience. It behooves every obstetrician, therefore, to be ever on his guard for cases of this character. An early diagnosis is also essential. In fifty-one cases of single labors, at full term, reported by Dr. Lee, turning was effected with difficulty, and sometimes after repeated, unsuccessful attempts in twenty; and in ten, podalic version could not be accomplished at all. In nine cases cutting instruments were employed; in seven of these, besides perforating and employing the crochet, the arm was removed at the shoulder; in two, besides amputation of the arm, the head was separated from the trunk. Rupture of the uterus occurred in seven of the cases. In the fifty-one cases, ten of the women died, forty recovered, and in one the result is not stated. Twenty-six of the children are reported dead; four alive; and in twenty-one the result is not mentioned, though the attending circumstances, such as compaction of the presenting parts of the child, prolapsed cord without pulsation, and prolonged powerful contractions of the uterus, show that a large proportion must have been still-born. These with other statistics show the importance of an early diagnosis, and a timely resort to artificial interference, should it be determined upon.

Shoulder presentations are sometimes simple, as in the case presented. Not unfrequently, however, they are accompanied with the descent of an elbow, arm, or hand, the latter sometimes protruding at the vulva. The descent of an arm and hand offers less difficulty to the diagnosis than might be supposed. Indeed, when it is ascertained that there is not a procidentia of the hand with the head, the prolapsed arm and hand will not only declare the shoulder at the brim, but indicate the particular shoulder offering, and the position of the presentation. Simple shoulder cases are not always easily diagnosed. It is seldom that cases are encountered offering such facilities for ascertaining not only the presentation, but also the position, as the one here reported. It is very easy to describe the diagnostic signs, but quite a different matter to detect their presence with positive certainty. Even when the shoulder is felt it is liable to be mistaken for some other part of the body. It may be confounded with the breech, as there is a resemblance to the touch between its summit and one of the nates. Singular as it may appear the top of the shoulder has been mistaken for a tumified occiput; and the intercostal spaces for sutures of the head. From the description given in some of the text-books it might not unreasonably be inferred that the diagnosis of these cases can readily be determined. It might be a question whether such impressions are not sometimes productive of great injury, as well as increased danger, by delaying interference and prolonging the labor until the shoulder becomes so impacted that version is rendered impossible, and cutting instruments are the only means left to effect delivery.

Cazeaux thinks it possible to diagnose a transverse presentation if the abdominal walls are but little distended, thin and easily depressed, by detecting the child's head in one or the other iliac fossa, and by the impossibility of reaching the presenting part with the finger. I have known these conditions to be present in cases which terminated spontaneously by the breech. There are no signs which will enable us to detect a shoulder presentation before the commencement of labor, with absolute certainty. One may be suspected, if, upon an examination of the abdomen, the uterus presents the appearance of greater breadth than length. But so many circumstances may give rise to this appearance, as an excessive quantity of liquor amnii or the presence of twins, that little reliance can be placed upon the external figure alone. Neither can palpation and auscultation enable us to distinguish positively a shoulder presention. It is only after the labor has made some progress and the different parts of the presenting portion of the child can be distinguished by a digital examinaton that an offering of the shoulder, unaccompanied with a prolapsed arm and hand, can posively be determined. The top of the shoulder in which may possibly be detected the acromion; the spine of the scapula; the clavicle; the ribs and spaces between them; and the axilla are the only positive signs of a shoulder presentation.

It will be observed that not only were most of the prominent features of a shoulder presentation detected in this case, but also the exact position of the child in utero: The top of the shoulder, the clavicle, some of the costal interstices, and the scapula; the axillary space indicating the location of the head and feet; and even the hand of the child upon the chest. To find all these evidences of a shoulder offering without force or violence, much difficulty, or increased suffering to the patient, in a labor of fifteen hours duration, eight hours after the membranes had ruptured, must be regarded as an unusual circumstances. The large capacity of the pelvis was undoubtedly one of the causes which rendered these signs so readily discernable and the diagnosis comparatively easy. But it was not the only cause. As already stated, there was no impaction of the shoulder; besides, the uterus was not firmly, or uniformly contracted over the body of the child. From the projection of the knees formed by the flexion of the legs upon the thighs to the projection of the presenting shoulder, was an unoccupied space between the wall of the uterus and the thorax of the child. The presence of this space prevented much of the difficulty which might otherwise have been encountered in introducing the hand, detecting the shoulder with its surroundings, and reaching the hand of the infant.

2nd. *The interval between the rupture of the membranes and the commencement of version:* It might rationally be expected that the preservation of the membranes intact until the correction of the malpresention had at least begun, would be necessary to accomplish the desired change; or that failing, that the transposition from a shoulder to a head presentation would take place with the pains accompanying the evacuation of the "waters," or soon after. This is what usually occurs; but in this case version did not commence for nine hours after the escape of the liquor amnii. Though an exception to the general rule, this was not so remarkable as might at first appear. Cazeaux says, changes of presentation in shoulder cases occur in some instances, long after the membranes are ruptured; and Playfair tells us, that a few cases are mentioned in which spontaneous version has taken place after the shoulder had been engaged at the brim for a considerable length of time.

Cases even are recorded in which three days elapsed between the escape of the amniotic fluid and the evolution of the child.*

3rd. *The time occupied in version and expulsion:* Version was accomplished in two hours; and only a few minutes more elapsed until the birth of the child. This was more rapid than is the descent of the head in most natural labors; and yet, cases are mentioned in which spontaneous changes of anomalous presentations and expulsion, have occupied less time. Mr. Herlop, of Haverfordwest, England, reports a case of head and arm presentation in which version and delivery were more rapid. The patient had been in labor, under the charge of a midwife, twenty-four hours when the arm passed into the vagina and protruded at the vulva. For the purpose of turning, the hand was with great difficulty introduced beyond the presenting part when it was arrested by violent contractions, which suddenly raised the impacted head and arm out of and brought the breech and legs into the pelvis. Another vigorous contraction expelled the child. What is as remarkable as the rapidity of version and delivery, the child was full grown and alive, although the right side of the head, face and neck were much swollen.†

In a shoulder case reported by J. Jones, Esq., of Llanfair, the version and expulsion were still more expeditiously accomplished. The membranes had ruptured three days previously; an arm had been protruded several hours; and the shoulder had been so firmly impacted that turning was impracticable. Uterine action was continuous though slight, and there was no hæmorrhage, or symptom of exhausted strength. The perforator was introduced between the ribs with a view to eviscerate. "Scarcely had the instrument entered the thorax," says Mr. Jones, "when a severe, expulsive pain came on. In the meantime—it was the work of a second—the body of the child receded, the arm followed, and I had barely time to withdraw the instrument before the breech presented. A few minutes after the labor was over, and the woman recovered without an unfavorable symptoms.‡

4th. *The unaided recession of the umbilical cord above the pubis:* That the funis should prolapse is not of itself remarkable, since prolapsus of the cord is a complication met with in every variety of presentation. That it should be returned, however, beyond the reach of the finger without any manipulation or manœuvre on the part of the accoucheur, was to me a circumstance not entirely devoid of interest.

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* *London Lancet*, August 1871: p. 199 *Edinburgh Medical Journal*, 1863: p. 1133.

† Braithwaite, 1871; p. 236.

‡ *London Lancet*, August 1847; p. 199.

Many devices have been suggested for restoring the prolapsed cord, but none of them has been attended with very marked success. The fingers are poor instruments for accomplishing the object, and artificial contrivances have proved little, if any, better. The posture of the woman so as to favor gravitation has perhaps succeeded as often as any other means. As the patient in this instance lay upon her side with the hips somewhat elevated, gravitation may have in a certain degree aided its ascent; but I was impressed with the view that possibly the rotation of the child, and the rising of the breech towards the fundus, produced a traction which tended more to its recession than gravitation, or any other agency.

5th. *The cause of the child's death:* Most deaths of children occurring during labor, take place from compression of the cord; but this is not the only cause of death. It may be produced by compression of the thorax, and by the coiling of the funis around the neck of the child so as to interfere with the supply of blood to the brain. In this case the funis was not coiled around the neck; the fact that the chest was free from close contact with the walls of the uterus, would seem to preclude the idea that the lungs had been so compressed that respiratory life could not be established; and the cord, still pulsating, had receded apparently beyond a point of compression. What then caused the death of the child? My impression was that although the cord had receded and risen above the arch of the pubis, it had not been returned within the uterus, and was pressed upon against some of the pelvic bones during version. The descent of the head and exit of the body of the child were so rapid that it is difficult to conceive how fatal compression could have occurred during the few minutes they occupied.

6th. *The cause of version:* From the laxity of the uterine walls in front of the child's chest it might be inferred that contractions had been irregular and unequal. Did the irregular contractions, if any existed, spend their greatest force on the fœtal head, causing it to descend, the consequent movement of the shoulder towards the left side and the rising of the breech to the fundus? Such an explanation would correspond with a theory advanced by Cazeaux who thinks the change of position in such cases may be due to irregular contractions, one side of the uterus contracting energetically while the other remains inert, or only contracts to a slight degree.

7th. *Would another mode of treatment have saved the life of the child?* What should be the management of shoulder cases? The treatment may be arranged under two heads: The employment of art to aid in the delivery; and dependence on nature to complete the labor. The interposition of art is employed in two ways: by manual, and by instrumental intervention. When sufficient of themselves to complete the labor, the natural power also accomplishes it in one of two modes—by spontaneous evolution, or by spontaneous version. Manual interference aims at changing the malpresentation by version, and contemplates the safety of the child as well as mother; instrumental looks to the safety of the mother only, but not unfrequently involves the death of the patient as well as the destruction of the infant. Spontaneous changes of presentation and expulsion are by no means unattended with danger to child and mother; to the child from compression, and to the mother from rupture of the uterus, exhaustion and other accidents.

Each of these modes of procedure, then, is attended with hazzard. Which should be pursued? Naturally, that which threatens the least risk. This, when intervention is indicated, as it almost invariably is, statistics as well as an intelligent study of the process of parturition, would indicate to be version, the placing of the child in as nearly a natural position for its descent and exit as possible. Three kinds of version are given by the authorities—podalic, pelvic, and cephalic. Could any of these have been performed in this case with safety to the child?

The version most frequently resorted to, and most highly recommended by modern authors, is podalic, or turning. This method of changing a transverse presentation is reported not to have been practiced by the ancients; and yet detached allusions to it are met with in their writings. Celsus is said so have practiced podalic version, but only after the child was dead. The works of Ætius, who flourished towards the end of the fifth century, contain directions, quoted from older authors, for turning the child. Æginitus gave similar directions a century later. Both these writers seem to have practiced turning while the child was living. The operation does not appear to have been generally adopted; and it fell into disuse altogether, until revived about the middle of the sixteenth century. It was suggested by Franco in 1561. In 1594 Paré recommended it in all cases where it is possible to effect it. In the beginning of the seventeenth century Guillemeau, though adhering to the old practice of attempting version by the head, advocated the value of turning by the feet in labors accompanied with hæmorrhage, convulsions, or other accidents. During this century it was not only generally adopted, but valuable improvements in the mode of performing it were made by Mauriceau and others.

In our own time, up to a comparatively recent date, turning has been almost the only version recommended in shoulder cases. Lee speaks of no other kind. Ryan maintains that this operation is required in all cases of transverse presentations. Dewees teaches that the indication in shoulder and arm presentations is to bring down the feet. Bedford advises podalic version in all cases in which it can be accomplished. Leishman and Playfair both recommend turning whenever the operation is possible.

While so many of the highest authorities recommend turning as the proper treatment in these cases, the descriptions given of the mode of operating are often calculated to beget erroneous opinions of the facility with which it can be performed. It is true that the hand which should be employed for each position, the method of introducing it, the care with which it should enter the cavity and reach the feet, and the circumstances favorable to the success of the operation are carefully and minutely described. But, are the difficulties which may be encountered, with the means of overcoming them, always sufficiently pointed out? If turning is not always difficult, it is seldom very easy; and it frequently requires great perseverance, as well as skill, on the part of an expert to accomplish it, even when the proper conditions and time for its performance are present.

Whatever may have been the experience of others, my own has taught me that in some of the apparently most favorable cases, cases which promise the most safety to the child and least danger to the mother, a certain degree of persistance must be encouraged. The feet are sometimes located high up in the fundus and cannot be reached by the mere introduction of the hand; on the contrary, the feet cannot sometimes be seized until the forearm has entered the cavity; even when one or both feet have been grasped it is not always an easy matter to bring them down. The time occupied in such cases, the continued distention of the vagina and the suffering of the patient will often unnerve the most resolute woman, and cause her to clamor for an abandonment of the operation, however willing she may have been at first to submit to it. The remedies here would seem to be tact and careful perseverance.

Another difficulty frequently encountered arises from the contractions of the uterus cramping the hand and rendering it powerless. This difficulty is mentioned by all authors on obstetrics, but all do not agree upon a uniform mode of proceedure under such circumstances. Lee recommends the withdrawal of one hand when it is rendered powerless by contractions, and replacing it by the other. This is condemned by Simpson; and each has high authority for his views. To withdraw the powerless hand after the process has been commenced, and wait for its restored power before renewing the operation, is simply to afford the opportunity for impaction, and the consequent greater difficulty, perhaps impracticability, of completing the version. I have no hesitation in relieving the cramped hand by the other; and if this should also become powerless, using both hands alternately until turning, if practicable, is accomplished, unless some untoward circumstance should render perseverance unjustifiable. Of course persistent efforts of the character indicated must keep constantly in view the danger of rupture or other peril, and be governed accordingly. Churchill gives the mortality among mothers in cases of turning, as one to fourteen; and the children more than one in three. According to other staticians the infantile mortality is one in two.

Podalic version has been accomplished without the usual process of turning by introducing the hand, grasping the lower extremities and bringing them down into the vagina. M. Deutsch, a Russian professor, succeeded in pushing up the body of the fœtus with the palm of the hand and effecting a rotation which brought the feet to the uterine orifice; and he maintains that the operation is useful in shoulder presentations.* It is not stated whether any external manipulation was employed. But it has been claimed by authors that podalic version can be accomplished by bimanual manipulation, without the introduction of the hand within the uterus. Sir James Simpson gives nine rules for attempting version in this manner, the substance of which is: After introducing two fingers so as to reach the fœtus, push the presenting part to one side, while the other extremity of the uterus is pushed in the opposite direction by a hand applied externally to the fundus; tilt the fœtus so that the body and legs are bent towards the face; continue this as each succeeding part descends until the knees are within reach, the breech being at the same time well pushed down by the external hand; then change the external hand from the fundus, apply it so as to elevate the head of the fœtus, bring down the knee, and proceed as in turning by the introduction of the hand. This mode of turning I have never attempted; nor can I conceive any advantage in it if the os is sufficiently dilated to introduce the hand and effect a more speedy delivery by the ordinary method. It might indeed be said that the operation could be commenced before the os was sufficiently dilated to admit of turning in the usual manner, and completed before the hand could be safely introduced. This might be true; but the podalic is not the safest of versions, and I would prefer to rely upon nature to correct the position until the proper stage arrived for performing version in the ordinary way. If then, interference was indicated the form of version best adapted to the safety of the child could be attempted; and if turning could be accomplished by combined internal and external manipulation, why could not cephalic version, which is much safer, be successfully performed in the same manner?

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* Ryan's Manual of Midwifery, 1835; p. 378.

Many authorities advise the grasping of both feet and bringing them through the os into the vagina. My own experience warrants me in not regarding this as essential. In my early practice I sometimes found difficulty in bringing down both feet even after they had been grasped. Of late years I have been satisfied with bringing down one foot and securing it, if necessary with a fillet; then, if it is desirable to have both feet down, searching for the other and treating it in like manner. If the foot first brought down interferes with the reintroduction of the hand, it tethered with the fillet may be allowed to return into the cavity of the uterus while the other is searched for and secured. Even if both feet thus secured should retreat into the uterus they are easily brought down again by traction on the ends of the fillet; under careful traction upon the thighs the body revolves, and the breech soon follows.

I have several times succeeded in turning when neither of the feet could be grasped within the uterus, by following the thigh to the knee, forming a loop around it with the finger, bringing it down by traction until the leg could be traced to the foot; then bringing it down and securing with a tape. A loop can be secured around the ankle of the child, even when the foot is well up in the vagina, by placing a prepared noose around the hand, or wrist of the accoucheur, and have it slipped over his knuckles and fingers, and the foot of the child until it reaches the ankle and is tightened. It is seldom advisable to bring down both feet if the child is living, as the folding of one extremity up over the abdomen forms a partial breech presentation and offers some protection to the circulation in the cord. Besides the securing of one foot only, avoids the danger of bringing down two feet of different children in cases of twins, and also the suffering which must be endured during the search for the second foot.

Late writers on the subject either do not consider the securing of both feet necessary in the operation of turning, or emphatically condemn the practice of bringing down more than one. Dewees approves of acting on one foot alone when both cannot be obtained. Bedford does not consider it essential to grasp both feet; for if one should be brought down the other will soon follow. Dr. Condie says that in certain cases it is unnecssary to lose time by searching for both feet, as delivery can be accomplished equally well by bringing down only one, while the risk to the child is less. Dr. Radford, of Manchester, advises never to bring down more than one foot in turning, so as to approximate as nearly as possible to a breech presentation. Simpson holds it to be improper to follow the advice of Lee, to never be content with one foot when it is possible to grasp both. This eminent author maintains that such a course is unjustifiable in most cases, for which opinion he gives several reasons, among which are: The great difficulty of seizing both feet; the more ready adaptation of the child to the oblique diameter of the pelvis by traction on one foot; and the danger of compaction of the head and fatal compression of the umbilical cord. In no case does he admit the propriety of bringing down both extremities, except the uterus is ruptured. Still more recent authors agree with the views of Simpson. I have seen cases, however, with only one foot down, in which the breech of the child refused to adjust itself to the long, or oblique diameter of the pelvis, under the contractions of the uterus and traction upon the limb, until exhaustion threatened the mother, and it became necessary to get hold of both feet and deliver as speedily as possible.

Would turning in this case have saved the life of the child? The funis had prolapsed, but had soon receded and apparently been returned within the uterus, while still pulsating. There can scarcely be a doubt that it would again have come down in the operation of turning, and been subjected to such compression before the exit of the head as would destroy life. Delivery by podalic version could not possibly have been accomplished more expeditiously than was effected by nature after the head offered at the brim. Before that time there was no evidence that the circulation had been arrested in the cord; on the contrary, there was strong presumptive evidence that it was still intact.

The fearful infantile mortality in cases of turning naturally suggests the question whether some safer method of correcting shoulder presentations could not be adopted. With this view the bringing down of the pelvis of the child, and effecting delivery by the breech, has been proposed; but it has met with little favor from most writers on the subject.

Leishman admits that it can be accomplished by dextrous management, although with much greater difficulty than podalic version. Ramsbottom speaks of it, but considers it somewhat dangerous, and also difficult, as the breech cannot easily be grasped so as to bring it to the pelvic brim. Bedford also regards it not only as more difficult, but more dangerous than turning. Dr. Wm. Tyler Smith contends that when effected it is not of much greater value than podalic version, when one foot only is brought down.

Is its difficulty a sufficient objection to its employment? Podalic version is also difficult, sometimes exceedingly so, but is that good a reason for abandoning its practice? If the difficulty can be overcome by dextrous manipulation, should not the necessary dexterity be cultivated and made one of the acquirements of the accoucheur, if it contributes to the saving of human life? I cannot understand why it should be more dangerous than conversion into a footling case, or even into a semi-breech presentation. While the deaths among mothers in footling cases is said to be one in four; in breech, they are said to be no greater than in vertex presentations?*

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* Bedford's Principles and Practice of Obstetrics. New York, 1863. p. 346.

The infantile mortality in footling cases has been set down according to different statistics at from one in two to one in three and a half. In the Dublin Lying-in Hospital, under the direction of Dr. Collins, it was about one in five in breech cases. That the deaths among children should be less in breech presentations than in cases of turning by either one, or both feet, might be inferred from the relative size of the hips as they present themselves in each case. The circumference of the hips when both legs are extended is from ten to twelve and a half inches; of breech, with one leg down and the other turned up, from ten to twelve and a half inches; of the breech, with both legs flexed upon the abdomen, from twelve to thirteen and a half, or about the same as the circumference of that portion of the head which presents in labor.*

It must be admitted that the pelvis and the slippery nature of its surface, render the operation difficult; and that like other versions it cannot always be accomplished. But when practicable it certainly offers greater safety to the child than turning, as the doubled up extremities and body not only affords protection to the cord, but prepares the way for the more speedy expulsion of the head than the wedge-shaped feet, legs, body, and shoulder exit. Even if the operation should require more time for its accomplishment than podalic version, the greater probability of saving the child would compensate for additional suffering, if the life of the mother were not imperiled by it; and it is not presumable that it would be persisted in if it increased her danger. It is a question whether this version is attempted as often as it should be. Practitioners are apt to resort to turning as soon as supposed danger to the child appears, and the conditions of the mother promise success, without at all considering the propriety of attempting pelvic version. Indeed, some obstetricians do not wait for the appearance of danger, but proceed to turn if thought practicable, whenever an irregular presentation of any character is found to be present. Many invariably bring down both feet depriving the funis of the protection afforded by leaving one leg flexed over the abdomen. The case reported was the second position of the right shoulder, the abdomen of the child looking forward. It was not, therefore, a case in which pelvic version could have been performed.

The most favorable presentation in labor is the head; and any process which would enable the accoucheur to convert a shoulder into a vertex case, would rationally recommend itself to the profession. Could it have been successfully accomplished in this instance? Cephalic version consists essentially in clearing the upper outlet of the anomalous presentation, and bringing, or inviting the head to the brim; then leaving the case to nature, or employing forceps if required. The modes of performing it at present is of modern origin, but the operation itself dates back into antiquity. Hippocrates speaks of it; and his contemporaries mention no other kind of version. Up to the adoption of turning by the feet, version by the head was regarded as the safest and most practical method of terminating preternatural labor. It seems to have been the almost invariable rule in such cases to attempt this mode of changing the presentation, and failing in its accomplishment, to deliver in whatever manner might be found most practical. Though almost superseded by the new method during the latter half of the sixteenth century it was not entirely abandoned. As already remarked, Guillemeau, in the beginning of the seventeenth century, continued to practice it even after he had approved of and recommended version by the feet. Towards the end of the eighteenth century it received a new impetus from Flammand. He was followed in its advocacy by Lable, Eckhart, Schnaubert, D'Outrepont and Regnaud. Busch gave an account in 1826 of fifteen cases, in fourteen of which the infants were born alive. In 1827 Ritgen collected forty-five successful cases. Sixteen cases are reported by Ricke. To the names here given who have borne testimony to the value of cephalic version, may be added those of Hamilton and Gouch, Wigand and Martin, Dr. Braxton Hicks, and our own distinguished townsman, Dr. M. B. Wright.

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* Condies' Churchill p. 322

Notwithstanding cephalic version has such high endorsements, its admission into the category of approved obstetrical operations has met with earnest opposition from eminent obstetricians, and incredulity, indifference and discouragement from others. The doctrine of Flammand was at first severely criticised by the French. Jardien restricts its application to a limited number of cases; Baudelocque scarcely speaks of it; and Madame Lachappelle formally rejects it. It has since their day been more favored by French writers on the subject. Velpeau contends that it is the safest for the child even, if it should become necessary to complete the delivery with the forceps. Cazeaux recommends it in all cases of transverse presentations, when the pelvis is contracted and the arm not prolapsed, and says that turning by the feet should never be resorted to in such cases, until several attempts have been made to bring down the head. British authors generally condemn it. Lee does not mention it in his Theory and Practice of Midwifery; Dubois and Burns approve of it only in certain cases; Ramsbottom admits it is the safest for the child, but claims that it is the most dangerous to the mother, from the violence likely to occur to the vagina and uterus in the operation. Our own distinguished writer on obstetrics, Dr. Dewees, doubts its practicability, and recognizes only three proper modes of procedure in shoulder presentations: turning; waiting for spontaneous evolution; and the employment of cutting instruments. The restoration of the head to the superior strait by removing the shoulder from it he regards as mere theory, and does not even advise the attempt, because, he maintains, aside from its difficulty, it would be attended with more risk to both mother and child than a well conducted turning, which he considers the more preferable operation. I fail to conceive how it would be attended with more risk to mother and child in view of the fact, that the proportion of living children in cranial and podalic version is greatly in favor of the former. In forty-one cases of cephalic version reported by Busch, Ricke, and Ricker, only three children were dead, or 7.3 per cent., while statistics show the infantile mortality in pelvic version to be about twenty per cent., and in turning from thirty-three to fifty per cent. The mortality to mothers is certainly not greater in cephalic than podalic version. If there should, in particular cases, be increased danger to the patient it should not be forgotten that in all difficult or tedious obstetrical operations, much of the peril which formerly threatened can now be avoided by anæsthesia.

Two methods of performing cephalic version, by internal manipulation, have been recommended: One by grasping the head and bringing it to the brim of the pelvis; and one by gently pushing up the shoulder, thereby inviting the descent of the head, and then leave the case to nature, or if necessary, employ the forceps. The difficulty in the first methods is in grasping the head with sufficient firmness to bring it to the brim. Obstetricians who have attempted this method, especially those with small hands and weak muscular power in them, can appreciate the chances of success. Velpeau contends if the waters have not been long discharged the head may often be seized and brought to the brim without difficulty, even when it has been at considerable distance from it. He believes it, however, the better practice to force the head down by pushing the presenting part up, and considers it rarely dangerous to child or mother.

The possibility of performing cephalic version by external manipulation was referred to by Dr. John Peachy, as early as 1698. In the beginning of the present century the operation was advocated by Wigand. He says, we may often succeed in bringing the head to the superior strait, by acting on the uterus through the abdominal walls, and assisting the descent by the posture of the woman. Velpeau made the same discovery before he was acquainted with the views of Wigand, but he does not attach much value to the process after the membranes have been ruptured, and the uterus strongly contracted on the child, Professor Martin, of Jena, gives thirty-four cases by external manipulations alone, seven of which were performed by himself. Dr. A. Mattei, of Paris, in an essay published in 1855, strongly advocates the process; and believes, except in cases offering insuperable objections, it will ultimately entirely supersede podalic version. A case of cephalic version by external manipulation, with safety to mother and infant, is recorded in the American Medical Times, for June 1860, by Dr. B. Fordyce Barker.

The operation consists essentially in applying both hands externally upon the abdomen, and gently depressing the fœtal head with one hand while the other is directed to elevate the breech. Ignorant midwives, who have never read anything on the subject, often essay a similar mode of procedure. Suspecting a "cross birth" from the form of the abdomen, they attempt its rectification by elevating one side of the uterus and depressing the other with the hands exterally applied. From their ignorance of the true position of the child in utero, there is reason to suspect that if successful at all they are as likely to accomplish pelvic as cephalic version. But the idea, however crude, is the same as that which suggests specific rules for this version by external manipulation. Cases have occurred in which partial version was accomplished when the operation had to be abandoned. Dr. Elliot gives a case of this character. He attempted to rectify a transverse presentation of external manipulation. The attempt was immediately followed by rupture of the membranes, the descent of the left elbow into the vagina, and the presentation of the brow at the brim. The hand was returned when the cord prolapsed, and the perforator was brought into requision to complete the labor.

It having been established that cephalic version can be accomplished by either internal or external manipulation it might be supposed that the combined use of both would speedily follow. This does not seem to have been the case. Vague allusions to possible combined action may be found in writings on obstetrical subjects; but it remained for our distinguished fellow-citizen, Dr. M. B. Wright, to discover a definite process and give the profession precise rules for bimanual cephalic version in shoulder cases, half a century after the internal and external methods were respectively advocated by Flammand and Wigand.

Dr. Braxton Hicks, and others in his behalf, have disputed the claim of Dr. Wright to the original introduction to the profession of the operation of cephalic version by bimanual manipulation. Leishman says that while Hamilton, Gooch, and others, effected cephalic version by manipulations which are purely internal, and Wigand and Martin by a method which is exclusively external, it is to Dr. Braxton Hicks that we owe the combined method. Playfair claims that to Dr. Hicks "incontestably belongs the merit of having been the first to show the possibility of effecting complete version by combined external and internal manipulation, of laying down definite rules for its practice, and thus popularizing one of the greatest improvements in modern midwifery." Dr. Hicks himself, in a letter published in the *American Journal of Obstetrics*, February 1873, claims the credit of first introducing the use of both hands together, one supplementing the other, so that when either the internal or external hand began to loose, the other would begin to gain power.

Dr. Wright demonstrated the practicability of cephalic version by bimanual manipulation as early as 1847. The operation was introduced by him to the general profession in an essay on "Difficult Labors and their Treatment," read before the Ohio State Medical Society in 1854, and published in the proceedings of the association for the same year. In the following year, Dr. Penrose, of Philadelphia, described the process of bimanual version without, it would appear, a knowledge that he had been anticipated by Dr. Wright.* Some years later Dr. Hicks advocated the operation in an essay "On External and Internal Version,' published in 1864. It may be that the London obstetrician was not aware of the discoveries of Wright and Penrose; but it seems singular that he should still claim priority for that which was demonstrated and published years before he gave the profession the benefit of his experience. As before remarked, Dr. Wright's claim really antidates that of the essay read before the Ohio State Society. The essay, for which the prize of a gold medal was awarded, which certainly relieved it from the character of an obscure paper, and should have brought it prominently to the notice of such celebrated obstetricians as Dr. Hicks, was read in 1854. Seven years before, (1847), Dr. Wright performed the operation; and several successful cases were published between that time and the reading of the essay, three of them in the *Western Lancet* during the years 1850 and 1851. Other cases have since been reported. Soon after the publication of the prize essay, the late Dr. Stephen Bonner, a physician of large obstetrical experience, and a gentleman of the highest sense of honor, assured me of a case occurring in his own practice in which cephalic version by bimanual manipulation was successfully accomplished by Dr. Wright. Another case, reported in the *American Practitioner*, was performed by him in the Cincinnati Hospital, in the presence of the medical internes, and nurses, as late as January, 1876.*

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* Medical Examiner. July, 1855. p. 405.

Dr. Wright's views and method of performing this version had not only been published in medical journals, but had also been incorporated in text books before 1864. In his edition of Churchill, 1863, Dr. Condie gives Wright's method without referring to Hicks, or his process. Dr. Bedford, in his valuable work on Obstetrics, without mentioning the claim of Dr. Hicks, also quotes from Dr. Wright on the subject. Dr. Hugh L. Hodge, in his "Principles and Practice of Obstetrics," published in 1864, gives Dr. Wright's process somewhat in detail without alluding to Dr. Hicks. He also cites Dr. Penrose's case, which was the second of twins, as the result of Wright's suggestions on the subject. Dr. T. Gaillard Thomas, of New York, in a recent work entitled, "A Century of American Medicine, 1776–1876," has very conclusively shown that the claim of Dr. Hicks is unwarranted, and maintains that the operation of bimanual version "has been so fully, clearly and unmistakably described by Dr. Wright, that it is difficult to understand how the procedure can be styled by any other name than *Wright's Method.* In a letter to Dr. Thomas, dated January, 1876, Dr. Wright claims "the credit, if credit there be, of having first suggested to the profession, and demonstrated in practice, the value of bimanual version. It does not appear that he claims to be the discoverer of the use of both hands in the management of labor. This was practiced, especially in obliquities of the gravid uterus, before the views of either of these distinguished gentlemen were published. The merit to which Dr. Wright can demand original claim, consists in the internal and external adaptation of both to the successful accomplishment of cephalic version in shoulder and transverse cases.

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*American Practitioner. March, 1876. p. 142.

Though the principle of employing both hands simultaneously, internally and externally, is the same, there is a difference in the process for the operation given by these two gentlemen. The method of Wright consists in pushing the presenting part in the direction of the feet of the child with the fingers of one hand, employed internally, and with the other hand, externally applied, elevate the breech so as to allow the head to descend. The plan of Hicks, is to "push the shoulder with one or two fingers through the cervix in the direction of the feet. At the same time pressure by the outer hand should be exerted on the cephalic end of the child. This will bring down the head close to the os; then let the head be received on the tips of the fingers. The head will play like a ball between the two hands; it will be under their command, and can be placed in almost any part at will. Let the head then be placed over the os, taking care to rectify any tendency to face presentation. It is well, if the breech does not rise to the fundus readily after the head is fairly in the os, to withdraw the hand from the vagina, and with it press up the breech from the exterior."*

The difference in these two modes would seem to consist in the duty assigned to the external hand. In the former method this hand is employed to elevate the breech, and thereby, with the aid of the fingers to the shoulder, invite the descent of the head. In the latter, the external hand is employed directly in pushing down the head, and then if the breech refuses to rise and complete the version, by resorting to purely external manipulation. This process is not unlike a modification of Wright's method. Whether it is an improvement is quite a different matter. Which is the more rational and practical, may be judged by the experienced obstetrician, or the practitioner who will put both to the test. In both operations the shoulder is made the pivotal point; in one, the long arm of the lever is acted upon externally; in the other, the short arm. From a theoretical point of view the question might arise whether the external downward pressure upon the head with the breech unraised or unsupported, would be more likely, even with the internal assistance of the fingers, to elevate the shoulder than to depress it into the pelvis.

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*Essay "On Combined External and Internal Version," by J. Braxton Hicks, M. D., F. R. S. London, 1864.

When the operation of bimanual version in shoulder presentations was first recommended, many doubted its practicability. Several failures to accomplish it made the writer incredulous. The testimony in its favor, however, was too strong for skepticism to continue; and I am now satisfied that at least one of the failures was due to impatience, and the greater despatch with which delivery could be effected by podalic version. Cazeaux believes that in transverse presentations the external operations of pushing up the breech with one hand and the head down with the other, might be aided by pressing up the presenting part with one or two fingers within the os. Simpson speaks of the advantage to be derived from external manipulation assisting the hand in utero. Dr. Wm. Tyler Smith says that cephalic version by internal manipulation is very much aided by the external application of the hand, particularly when the abdominal walls are sufficiently thin to allow of the different parts of the fœtus being felt. The views and experience of other obstetricians tend to confirm the success claimed by Wright and Hicks. In the case reported in the beginning of this paper there is no doubt in my own mind that cephalic version could have been successfully accomplished; and if performed before the prolapsus of the cord, with, in all probability, safety to the child.

In speaking of the different kinds of version no allusion has been made to the proper periods for the operation, or the circumstances under which it should be performed, because there is little difference in the opinions of authors, or in practice on these subjects. For the same reason it has not been deemed necessary to speak of the rules for introducing the hand and effecting turning by the feet. It may, however, be remarked that while some authorities direct the use of a particular hand for particular presentations, others admit of exceptions to the general rule. Some practitioners have so little power of the left hand that they find it difficult in any case, sometimes impossible, to operate with other than the right.

On the mode of procedure when the presentation is complicated with a prolapsed arm and hand greater differences exist. Some of the authorities recommend the return of the arm if possible, while others regard this as entirely unnecessary. Denman says: "the presenting arm is never an impediment of any consequence, and ought not to be regarded, or on any account removed." Dewees states that arm and shoulder presentations, though far from favorable are not so menacing as is commonly supposed; that the arm itself offers no indication except to point out the position of the shoulder; and that it should not be interfered with, because it offers no impediment to the passage of the hand in the operation of turning. He admits the hand may be prevented from prolapsing into the vagina, but not the arm. Lee says no attempt should be made to return the arm, when the liquor amnii has been long evacuated. Ryan advises simply the pushing of the arm to one side before introducing the hand, unless it has become so tumified that the hand cannot pass, when he thinks amputation of the limb might be justifiable. Ramsbottom advises the bringing down of the arm for the purpose of making an accurate diagnosis when there is doubt of which shoulder presents; and claims that it does not interfere with the operation of podalic version. Cazeaux thinks that instead of returning the arm we should rather apply a fillet to the wrist so as to secure it in its prolapsed situation while searching for the feet. Bedford says that the protrusion of the arm in shoulder presentations is no longer regarded as necessarily fatal to the child, and with Cazeaux, recommends the attachment of a fillet to the wrist for the purpose of keeping the arm elongated during the process of delivery.

Notwithstanding these high authorities, it has been my practice of late years to attempt the reduction of the hand and arm, and generally with success, unless it had been long prolapsed, or the uterus was firmly contracted on the fœtus. It is true that the hand can be introduced with the arm of the child down, since the arm and hand of the operator will not exceed in bulk the size of the fœtal head at full term; but the space occupied by the prolapsed member is often advantageous to the accoucheur in making the curve of the pelvis so as to reach the feet; and besides, it is always less painful to the patient to introduce the hand when the vagina is free from obstruction than when it is occupied by the arm of the infant. If spontaneous expulsion is expected it might not be necessary, or even expedient, to attempt the reduction of the arm as it would most probably recede with the evolution of the fœtus and descent of another part of the body; but if practicable, when version has to be resorted to, its return does not appear to me improper. Mr. Barlow says that when the accoucheur has the management of the case from the rupture of the membranes, the reduction of the hand may frequently be accomplished by pushing it up and supporting it at the brim until the head becomes engaged at the superior strait. If the manual effort fail to restrain it above the strait, he recommends the introduction of a sponge or other soft substance to support it until the head has cleared the brim. Dr. M. B. Wright thinks that while the arm, at full length in the vagina interferes little in the operation of podalic, its restoration is necessary in cephalic version. In a paper communicated to the American Practitioner for March, 1876, he describes a method of returning a prolased arm which I have found successful. The process consists in flexing the hand on the forearm, and this on the arm; then while the arm is being restored, in elevating the shoulder by external pressure over the breech and direct force with the hand in the vagina.

8th. *Was reliance upon spontaneous version justifiable?* The next mode of treatment to which I shall refer is the expectant, or relying on nature to change the presentation and expel the child spontaneously. Spontaneous expulsion has been described under two heads: evolution and version. Denman first styled the expulsion of the child in shoulder presentations by the natural powers alone, spontaneous evolution. Murat called it spontaneous version. Ramsbottom, Dewees and Churchill speak only of spontaneous evolution. Ryan refers to spontaneous evolution and version as the same process. Bedford speaks of cephalic and pelvic spontaneous evolution. Cazeaux makes a distinction between evolution and version. Playfair follows Cazeaux and treats of spontaneous evolution and version as different processes. These two terms have frequently been used as synonomous. A distinction, however, is now generally recognized: spontaneous evolution being employed to designate cases in which a part of the child more or less remote from the presenting shoulder may descend and be expelled without displacing the part first offering; spontaneous version to designate cases in which the shoulder is driven away by uterine contractions, and another part of the fœtus substituted. In evolution the child is expelled double; in version it is expelled as in an original head or breech presentation. This distinction, if it has no other merit, at least prevents confusion. It also seems in consonance with the definitions of the respective terms, evolution having been defined as an unfolding or disentangling process, and version as a transformation or change of direction.

To Dr. Denman has been conceded the credit of first calling the special attention of the profession to spontaneous expulsion in shoulder cases The possibility of its occurrence, however, seems to have been noticed before his time.* It was subsequently noticed by Murat, Gartshore, Martineau, Lachapelle, Douglass, Gooch, and others; Denman gave to this form of labor the name of evolution; but his explanation of the mechanism is a description of spontaneous pelvic version. He maintained that the cases described by him were different from the double expulsion of premature and very small children; that the shoulder and arm of the child receded within the uterus and were replaced by the breech. This explanation which was given in 1772, was received until 1811, when Dr. Douglass published a different theory. He claimed that the shoulder did not recede; but remained fixed while the breech descended, and the child passed double. The views of Denman were then generally discarded, and those of Douglass adopted. But it has been discovered that both explanations may be correct; that both pelvic version, as described by Denman, and evolution, as explained by Douglass, may occur spontaneously. That the evolution of Douglass does take place has been proven by the observations of Gooch and others. Dr. Churchill bears testimony to having witnessed a case of this character; and he, therefore, subscribed to the prevalent opinion that Denman was mistaken in his theory of the mechanism of the cases which he brought to the notice of the profession. In a subsequent edition of his work, however, he acknowledges his error, and admits that Denman's views have been confirmed by the observations of M. Boer, Dr. Mitchell, Dr. Dyce, and Mr. Crosse.* Leishman also says that the correctness of Denman's views have been established.

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* Principles and Practice of Obstetrics; by Gunning S. Bedford, A. M., M. D. New York, 1863, p. 562. Note.

While Denman then was the discoverer of spontaneous version, though he called it by a different name, Douglass may be regarded as the discoverer of spontaneous evolution, which he designated by the more general term of expulsion. Velpeau admitted two varieties of spontaneous evolution; but Cazeaux cannot conceive how a cephalic one can take place except in an abortion, or a child completely putrified. It is not easy to understand how a child can be born with the head foremost, while the shoulder as the presenting part remained fixed, unless it is exceedingly small, or so putrid that it can be pressed into any form and size. Simpson, however, mentions two cases of spontaneous cephalic evolution, or expulsion. Though the thorax was impacted the head descended and ultimately passed out before the lower part of the body. One occurred in the Maternity Hospital; the other he saw in consultation with Dr. Skea.

The double expulsion of the child in shoulder and arm cases was observed by Puzos. Ramsbottom has known of seven cases of spontaneous evolution, or double expulsion to occur, in three of which the children were born alive. One was of full term; two were the second of twins; the rest were premature, and took place between the sixth and seventh month of pregnancy. Dr. Ryan states that he knew of two cases at full period, in arm presentations. In both, the children were dead. Dr. Richard Hodges † reports a case which occurred in January, 1863. The patient was a lady in labor with her fourth child. He found the os fully dilated and the membranes protruding through it distending the vagina, but could not detect any presentation. The liquor amnii escaped during a pain; and no further uterine action took place for three days, when slight pains set in, and a hand was discovered high up presenting. As the pains increased it was discovered that the right arm and shoulder presented. An effort to turn was thwarted by violent contractions of the uterus upon the hand of the accoucheur. As the vigorous contractions continued the arm and shoulder were forced down, and remained fixed under the arch of the pubis, while the breech descended and was expelled. Besides the cases of cephalic evolution mentioned above, Simpson gives two cases of spontaneous pelvic evolution. One the second of twins; the other a single birth; both attended by Dr. Cowen. A case of the same character, occurring between the seventh and eighth month, is also referred to by him.

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* Churchill's Theory and Practice of Midwifery, with Additions, by D. Francis Condie M. D., Philadelphia, 1863, p 421.

† Edinburgh Medical Examiner. p. 1133.

A case of spontaneous pelvic version, though the presentation had not assumed definite form, is detailed by Boer. The child lay transversely in utero, with the back towards the mother, and one hand prolapsed. On introducing the hand for the purpose of turning, the hand of the child was found to be receding and the breech descending into the cavity, in which position it was expelled. The cases described by Denman, in which the presenting part receded to give place to the breech, though called evolution, would appear to have been cases of spontaneous pelvic version. So also were the cases witnessed by Mitchell, Dyce, and Cross. There can, therefore, be no doubt that cases of this kind occur; and that Dr. Douglass unconsciously did injustice to the discernment of Dr. Denman, when he attributed all spontaneous conversions of shoulder into breech presentations, to evolution or double expulsion.

The case given by Velpeau, and cited in the early part of this paper, is an example of spontaneous cephalic version. Dr. Elliot relates a case occurring in the second of twins. The head was driven from the left iliac fossa into the pelvis where it encountered the elbow and passed with it into the world. I have met with twin cases with the shoulder of the second presenting in which I am satisfied that nature alone might have corrected the the presentation and expelled the child; but I have never felt justified in putting her to the test. It has been my custom when any other part of the second child than the vertex offered, to deliver without delay by the feet. Podalic version in such cases does not seem to be attended with as much danger to the infant as in single births. Indeed, I have never known delivery of the second of twins by turning, to be attended with fatal results when the first child was born alive.

Spontaneous evolution, or version, at full term is of extremely rare occurrence, so rare that many of the most experienced obstetricians have never encountered a case. Dr. Bedford has never met with one; and he is inclined to believe that some who think that they have witnessed the process, have been mistaken in their diagnosis. According to Dr. Rucke it was observed only ten times in two hundred and twenty thousand labors in Wurtemburg. Drs. Johnston and Sinclair mention its occurrence only twice in thirteen thousand seven hundred and forty-eight deliveries in the Dublin Lying-in Hospital. In the Vienna Hospital, under Dr. Spaeth, there was but one instance in twelve thousand five hundred and twenty-three cases of labor.

Not only are cases of delivery in shoulder presentations by the unaided powers of nature exceedingly rare, but they are also fearfully fatal to the infants. In thirty cases mentioned by Denman, only one child survived; and other statistics show little, if any, more favorable results.

Dependence upon spontaneous transformation of a shoulder into a head or breech presentation likewise increases the peril to the mother in most, if not all instances. The danger arises from the risk of impaction, rupture of the uterus, or extreme exhaustion likely to follow the necessarily violent and protracted labor. It is claimed by some that the only security for the patient in these cases, is a premature, putrid, or very small child, or an unusually capacious pelvis. All authors agree that when flooding, syncope, convulsions, or other untoward circumstance, indicating great danger to the mother is present, a spontaneous termination of the case should never be trusted.

In connection with these facts the question may be repeated: Was reliance upon spontaneous version in the case reported justifiable? The general tenor of the text books would condemn such reliance, although it has been admitted by some that the accoucheur would be warranted in waiting for spontaneous expulsion in certain shoulder cases where the conditions of the patient are favorable, the child living, and the operation of turning impracticable. Ramsbottom believes it more probable, if such cases are left to nature, that the uterus would rupture, or the patient die exhausted, than the child will pass double. Bedford advises never to depend on nature when it is possible to turn. Rigby tells us that we should not, except in the rarest cases, leave shoulder presentations to nature. Dewees recommends waiting for spontaneous expulsion, only when turning forbids the hope of saving the child; but never when the child is dead or any dangerous accident to the mother present. It cannot be too strongly impressed on the mind, says Playfair, that neither spontaneous evolution or version can be relied on in practice. He admits that trusting to nature when she was attempting evolution, and it would be impossible to turn, would be justifiable before resorting to embryotomy or decapitation. Simpson also thinks if, in arm or shoulder presentation, the trunk is already pressed down, so that attempting to push it back into the contracted uterus would be attended with great danger, the better practice would probably be to wait for spontaneous expulsion before resorting to the use of cutting instruments.

The case reported, presents features which might exempt the accoucheur from strict adherence to the views here cited. These were, first, the conditions of the patient; second, the conditions of the child; and third, the character of the labor. First, there were no convulsions, hæmorrhage, or extreme exhaustion; the history of the woman's previous labors in connection with the examinations at the time, gave assurance of a large pelvis; and the soft passages were moist and yielding. Second, the child was living; there was no impaction of the presenting parts or compression of the thorax; and the change of presentation promised to be one not of evolution, but of cephalic version, offering greater safety to the child. Third, before version commenced, the pains, though severe, were not such as usually threaten rupture of the uterus. After version commenced, the process was regular and uninterrupted; and at no time after the case was seen until the head engaged did turning seem impracticable, if absolutely demanded.

Was the expectant plan of treatment under such circumstances warranted? It may be said that turning should have been resorted to, at least after the cord had prolapsed; but it will be remembered that the funis, still pulsating, soon returned apparently beyond a point of dangerous compression. Though the membranes ruptured eight hours before the case was first seen, the os was not yet quite fully dilated; and version commenced in one hour after. Velpeau in the case reported by him waited five hours after the membranes ruptured, without attempting to turn, for the first indication of danger, because, as he says, the pains were weak and he had confidence, from the testimony of Denman, in the probability of spontaneous version. I am not aware that weak pains are a very formidable objection to turning, since the action of the uterus is often increased by the introduction of the hand into its cavity. Most obstetricians can bear testimony to this increased action. Several instances of the kind have been alluded to in this paper; and one in which the introduction of the perferator had the same effect. It is fair, therefore, to infer that the main cause of the delay was the hope of a favorable termination by nature. Four hours elapsed in effecting version, and yet Velpeau resorted to no artificial interference; in the other case two hours only were occupied in the version. If delay was warranted in the one case, was it not in the other?

9th. *Would spontaneous version or evolution occur more frequently, if artificial aid were not afforded?* During the latter months of pregnancy the child possesses great mobility in utero, and changes of position are of frequent occurrence. Playfair says: that such changes often take place in the latter weeks of gestation and before labor has actually commenced, is quite certain. He adds that they are probably more frequent than generally supposed. In June 1851, I met with a case in which a complete single knot, tightly drawn, was found in the funis. The child had reached full term, and was putrid when born. The placenta was healthy. In March 1852, I was summoned to the same patient in premature labor at about the seventh month of gestation. The cord prolapsed about an hour before delivery. The child was apparently healthy, but still born. In April 1853, the same woman was taken in labor at the eighth month. On my arrival I found that the membranes had ruptured, and a fœted fluid was escaping. The child was putrid, as was the cord, about two-thirds of the placental portion of which was twisted as perfectly as an ordinary rope. The placenta itself was healthy. In April 1857 and June 1860, I delivered the same woman of full term, healthy, living children. In two of these pregnancies, the first and third, there must have been great mobility of the fœtus and great mutations of position; in the last two the presentations were natural and the labors unattended with any difficulty.

Spontaneous changes of position also occur frequently after labor has commenced; but changes occurring before any part of the fœtus has entered the cavity, or engaged at the brim can hardly be called changes of presentation. They are not, properly speaking, instances of evolution or version. True cases of evolution and version, however, are not unfrequently mentioned in prema ture labors after the sixth month of utero-gestation. But in these the children are small, and the change and expulsion correspondingly easy of accomplishment.

More cases of spontaneous expulsion of shoulder presentations at full term, are reported in twin than in single births. The children in such cases, like those in premature labors, are usually small, the uterus generally not closely contracted on the fœtus, and the change of position, therefore, more easily effected. But are cases of single births of fully developed and ordinarily large children as few as they are generally thought to be? Had I been alone in the case reported, there would probably be one less case of spontaneous termination of shoulder presentations to record, because I should certainly have resorted to turning before version commenced; and I have no doubt that the operation would have been accomplished, and as little doubt that the same result to both mother and child, would have followed. Velpeau, in referring to the mutations of the fœtus replacing the part first offering by another, thinks that the spontaneous evolution of Denman, that is, version, is not so rare as is usually considered. Simpson also believes that spontaneous evolution occurs more frequently than is generally supposed, and that it would occur still oftener if timely assistance was not afforded by the accoucheur.

It is not at all improbable that cases occur which are not recorded in the journals. A few years ago my friend, Dr. T. C. Minor met with a case which has never been published. It occurred in this city, on January 31st, 1872. As soon as he ascertained that a shoulder and arm presented he sent for consultation. While waiting the arrival of another accoucheur, in the lying-in room apart from the sick bed, a sudden violent pain set in, accompanied by a quick, loud cry of agony, and before he could reach the patient the child was born. The case was a primipara; the patient was a healthy, young, married woman; the child was of full term, well developed, of medium size, and alive. So rapid was delivery that whether it was accomplished by evolution, or version could not be determined.

A possibly successful method of treating shoulder, or transverse presentations before the end of gestation might here be suggested. The suggestion is not founded upon any written authority with which I am acquainted; nor upon any individual experience, except in a single instance. I attended a woman in two successive labors with shoulder presentations. Both were terminated by turning; and in both births the children were dead. In an advanced stage of the third pregnancy the external figure of the abdomen presented the appearance of a transverse position of the child in utero. A firm compress was placed externally above what was supposed to be the head of the fœtus, and another under the opposite extremity, and both were secured by a well adjusted bandage around the hips and abdomen of the woman. The patient was instructed to lie at night upon the side opposite that in which the pelvic extremity was supposed to be located, and as long through the day as her duties would permit. After some time, that extremity had perceptibly risen towards the central line of the abdomen. The compress somewhat thickened was re-applied from time to time, and this manœuvre continued until the child had attained an apparently natural position. The support of the breech and the position of the patient while in recumbency were then maintained until the end of gestation when natural labor set in, the vertex presented, and she was delivered, without difficulty, of a healthy, living child. One case of apparent, or even real success is not sufficient to establish a general rule; but the testing of this means of correcting malpositions, when there is good reason to suspect one, could hardly be attended with injury or danger.

All the modes of treating shoulder cases mentioned may fail and the patient die in labor before delivery. In such cases post mortem Cæsarian section has been recommended as a means of rescuing the child from death. In 1850 I attended a patient, pregnant at nearly full period, in a fatal attack of cholera The dying woman repeatedly implored me to rescue her infant with such expressions as: "Doctor, cut me open and save my child; if not before I die, do it after." The motion of the fœtus was distinctly felt until within a few minutes of the death of the patient. I had not the courage at that time to undertake the operation myself, though the husband was willing to have it performed; and consultation could not then be obtained. In the year 1854, I was called by a clergyman to extract a child from the uterus of a woman who had died suddenly in parturition, during the temporary absence of the attending physician, An hour at least must have elapsed between the death of the patient and my arrival. An incision was made as rapidly as possible through the linea alba, the uterus opened, and the child extracted without difficulty. A tremor from the sudden excitement of the occasion confused the sense of touch, so that I could not determine whether the apparent motions in the funis and over the heart, were pulsations in the former and flutterings of the latter, or mere throbbing in the extremities of my own fingers. The clergyman, however, declared he felt the beating of the heart distinctly through the chest, and baptized the infant. If present it soon ceased; and attempts at resuscitation were fruitless.

Cases have since fallen under my observation, in which had permission been granted, a similar operation might have been performed with more flattering prospects of success. An old Roman law required physicians to endeavor to save the life of the child by opening the mother after death; and similar laws existed in different countries until as late as the middle of the eighteenth century. Instances are recorded in which the infant has been thus saved twelve, twenty-four, and forty-eight hours after the mother had expired.[*] Dewees cites two cases in which the Cæsarian section was performed after the death of the mother, with success to the child. One was after flooding; the other after death from dysentery. He himself performed the operation twice without success.[†] If a child can be saved by the operation after death from such an exhaustive disease as dysentery, might it not also be saved after death has suddenly occurred during labor, if fœtal circulation had not already been arrested. [‡]

When turning, pelvic, or cephalic version, and spontaneous expulsion fail in shoulder cases, the only remaining means of removing the child from the uterus is by the employment of cutting instruments. When applied to the fœtus these necessarily imply the death of the child, if life is not already extinct. Some practitioners resort to the use of the perforator and crochet, or amputating instruments before the death of the fœtus, upon the plea of saving the mother by sacrificing the child. The argument advanced is that the life of the mother is more valuable to society than that of the child. This practice cannot, in my opinion, be too strongly condemned. There can be no certainty that the mother will be saved; and nature shudders at and religion condemns the deliberate sacrifice of one human being with the doubtful view of saving the life of another. The word doubtful is used because in a large proportion of the cases in which embryotomy has been performed the women have died. One hundred and twenty-seven cases of difficult labors from all causes, tabulated by Lee, in which craniotomy was performed, resulted in the death of twenty-three of the patients, one in 5.52. Only four of these were arm and shoulder presentations; and of these, two of the women died. What is remarkable in the table of Dr. Lee, the duration of the labor in fatal cases was generally shorter than in those which resulted more favorably. Among the sequelæ in the cases of recovery were vesico-vaginal fistula, recto-vesical fistula, rupture of the perineum, uterine inflammation, and sloughing of the vagina. The statistics of Dr. Churchill do not show even as favorable results as these. In two hundred and fifty-one cases of craniotomy which he gives, the mortality of the mothers was fifty-two, or one in 4.82 Would an aged parent be justified, however affectionate and devoted the act might appear, in deliberately and determinedly sacrificing his own life in the hope that he might possibly, or probably save the life of his son? The argument that a young man's life is more valuable to society than that of an aged person, would hardly divest such sacrifice of the appearance of self-murder.

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[*] Ryan. Manual of Midwifery. 1835. p. 410.

[†] Dewees. 1847. p. 499; Note.

[‡] Since this paper was written, Dr. J. L. Cleveland; of this city, extracted a living child through the Cæsarian section an hour after the death of the mother. -*Trans. Cincinnati Obstetrical Society.*

Our sense of delicacy is shocked by calling the wilful destruction of a child in utero murder. It is so styled in criminal abortion; and it is difficult to designate it under other circumstances by a different appellation. Homicide is said to be justifiable in self defense. Infanticide can never be committed in self defense. Whether it is justifiable in defense of another will continue to be determined by every obstetrician for himself, unless it should be interdicted by human law. If the child is dead in utero, the objection to evisceration, craniotomy, decapitation, or amputation, as circumstances might indicate, would be removed. And fortunately, under judicious management, these operations are seldom demanded until fœtal life is extinct.

If cutting instruments must be resorted to in shoulder presentations, would it be amiss to consider the chances of saving both mother and child by the Cæsarian operation, as proposed in some cases of extreme pelvic contraction, or deformity? This was formerly recommended and practiced. In the sixteenth century the Cæsarian section was strongly advocated by Francis Rousset, physician to the Duke of Savoy, who reports several cases in which it had been successful to both mother and child.[*] Most English writers condemn the operation in all cases; and the results in Great Britian would seem to warrant this condemnation. Lee states that in twenty-seven cases collected in the United Kingdom, two only of the patients survived the operation.[†] Ryan, on the authority of Barlow and Conquest, says it has been performed nearly forty times in the British dominions, with, however, only the same favorable results, two recoveries.[‡] One of the successful cases was performed by an ignorant Irishwoman.

The European continental writers look more favorably upon this operation when the alternative is presented of selecting either it, or ovariotomy, than the British authorities. In two hundred and fifty-eight cases collected by Michaelis, the deaths of mothers were one hundred and forty, or 54.2 per cent; in three hundred and sixteen cases given by Churchill, the maternal mortality was 52.8 per cent.; in two hundred and thirty cases referred to by Baudelocque, ninety-one women died, or 39.5 per cent.[||] In this country the operation has been twice successfully performed with safety to both mother and child, by Dr. Gibson, of Philadelphia.[§] Dewees and Ryan both claim that in extreme pelvic contraction it is a question whether the operation of ovariotomy is not as fatal to the mother as the Cæsarian section. Baudelocque, nephew of the celebrated accoucheur of the same name, says that more than half the women who have embryulcia performed die.[¶]

It is conceded that in certain cases of extreme contraction, or deformity of the pelvis the Cæsarian section may be warranted. Might greater fatality be expected from it in shoulder cases when the pelvis is of normal size, and the labor can be terminated in no other way, except by the destruction of the child? It is true that the shoulder when turning cannot be accomplished might be impacted in the pelvis; but would there be great difficulty with the aid of an assistant, in elevating the presenting part by pressure through the vagina and careful traction through the incision after the uterus had been penetrated and the feet of the child grasped by the operator? Dr. Lizars, of Edinburgh, who operated successfully for ovarian disease, believes "there is little danger to be apprebended in laying open the abdominal cavity," and that in the case of a "child in utero with deformity of the pelvis preventing embryulcia, we should have recourse to gastrotomy.* The operation for ovarian tumors is not so much dreaded now as in the time of Dr. Lizars; and why the Cæsarian section should be condemned by the advocates of ovariotomy, in cases in which it offers the only chance for the life of the child, and according to the statistics of Churchill, and the opinion of Dewees and others, about an equal chance for the safety of the mother to that promised by ovariotomy, has not been explained, except by the plea that society would be more benefited if the mother can be saved, though the child be sacrificed, than if the child were saved at the risk of imminent danger to the mother. A sufficient number of recoveries after the Cæsarian section, in some instances performed by the patients themselves, have taken place to show that the operation is not necessarily fatal. Of course the danger is great; but why should it be greater with a healthy woman in labor, than the operation of ovariotomy performed on a patient who has suffered from a diseased ovary for years?

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[*] Renouard's Med. Hist. By C. G. Comegys, M. D. p. 336.

[†] Lee, p. 265.

[‡] Ryan, p. 405.

[||] Dewees, p. 493—note.

[§] Amer. Med. Journal for Aug., 1835, and May, 1838.

[¶] Dewees, p. 491—note. Ryan, p. 406.

I find little authority for the Cæsarian operation, and only offer these suggestions to elicit the views of the others on the subject. Operations once approved have fallen into disuse and been revived. Might not operations formerly unsatisfactory prove more successful in these days of anæsthesia and advanced science?

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Art. 2.—Maternal Impressions Affecting the Fœtus in Utero.

Read before the Cincinnati Obstetrical Society,

By C. O. WRIGHT, M. D.

In this age of intellectual development, close observation, Pathological and Physiological research, it may seem superfluous in our presenting a paper for your consideration, which may not, in itself, present anything tangible or new, but my apology is, the hope that it may give rise to discussion, and that something of importance may grow out of it.

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* Ryan, p. 413.

That maternal impressions may, can, and often do affect the fœtus in utero, there is to my mind no doubt. In what manner, or by what process, is still the question. I have been more firmly impressed in my convictions, and I think it will leave some impression on you, by the recital of the following typical case. It is not a very unusual thing for malformations to occur in families; still, I think it very rare for two or three cases to occur in the same mother, and which can be so plainly traced to impressions.

Mrs. R., at the early age of twelve years was a fully developed woman; about 4 feet six inches in height: of somewhat nervo-sanguine temperament, and blessed with considerable embonpoint. She became pregnant with her first child, when not yet fifteen years of age. During her pregnancy (as well as prior) her mother was subject to hysterico-epileptoid convulsions, and it was a continual subject of remark between them, that these attacks might have some effect on the child of the daughter. I tried in vain, to disabuse their minds, but they were firm in their belief, that "it would be marked."

In due course of time, a male child was born, which was perfect in its development, with the exception, that the testicles and penis were enveloped within the scrotum; a sufficient portion of the "glans penis," protruding for purposes of micturition; but virtually penis, testicles and scrotum forming one organ.

She became again pregnant, and aborted at the fifth and a half month, of a well formed child. Thirteen months afterwards, being again pregnant, the old fear of the child being marked, took possesion of her mind, but running in no definite channel. When the child—a girl—was born, a nevus was found on the forehead, shaped like a triangle; the base running along the margin of the hair, one and a half inches in length, and the apex in the centre between the eyebrows. A faint one occupying the entire upper lip; one third of the chin with one, and quite a cluster on the occiput. In the natural order of things, she became again pregnant, with her fourth child. While in this condition, about the seventh week, an only brother was arrested for a heinous crime, with a good prospect of the Penitentiary before him. Her grief and anxiety were very intense, and she was continually asking questions in regard to "prison life."

Upon one occasion, while visiting the jail, a prisoner was brought in, handcuffed; and she repeatedly spoke of the sight. She often inquired as to the manner of punishment at the prison, when I thoughtlessly told her, they put handcuffs on the wrists, as she had seen at the jail; also upon the ankles, etc; she immediately exclaimed "My God, would they do that to my brother?" It made a profound impression on her, and she states, for days it was on her mind: and upon two or three occasions, she dreamed she saw him in irons. When about five months advanced, she fell down stairs, producing a mis-carriage, and the child bore the following deformities: A hair lip—and as bearing more directly upon our subject, this condition: extending from the junction of the meta-carpal and first phalangial bone of the left hand was a fibrous cord, passing over and attaching itself to the tip of the index finger of the right hand; thence spreading out and enveloping the fingers, as would a mitten. About one inch from the tips of the fingers, on the radial side of the right arm, was attached a fibrous cord with a loose, floating end. Springing from the second toe of the left foot was a fibrous cord, passing over and around the ankle, two or three times, of the right leg, and almost amputating it. It would require but little stretch of the imagination to see the resemblance between the cords and the hand-cuffs, referred to in this paper.

It will be seen from the foregoing account, that we have a good basis for the inference that mental impressions being the *cause*, arrest or change in development was the *effect*. There were no after thoughts as to the causes, but there was continual fear and conversation upon the subject almost from the inception of pregnancy.

The idea of mental impressions affecting the fœtus in utero, is no new one. Reference to it is found in the times of Hippocrates, Galen and others, down to the present; even Scripture itself refers to it. Case after case could be cited bearing upon the subject, but time will not permit their recital. We do not refer, in this connection, to cases of hereditary predisposition, where certain deformities exist and are transmitted through families, but to cases that can clearly and unmistakably be traced to powerful impressions on the mind.

Montgomery, in his work on Pregnancy, says he "cannot help thinking it quite consistent with reason, and present state of our knowlege, to believe that a very powerful impression on the mother's mind, or nervous system, may injuriously affect the fœtus still lodged in her womb, actually a part of herself, and deriving its supply of life from her body."

"We have demonstrative evidence," says Dr. A. Combe, "that a fit of passion in a nurse vitiates the quality of the milk to such a degree as to cause colic and indigestion, or even death, in the suckling infant. If then in a relationship so strong, in its independence of parent and child, is it unreasonable to suppose that it should be yet stronger when the infant lies in its mother's womb, is nourished indirectly by its mother's blood, and is to all intents and purposes a part of her own body? If a sudden and powerful emotion of her own mind exerts such an influence upon her stomach as to excite immediate vomiting, and upon her heart as almost to arrest its motion and induce fainting, can we believe that it will have no effect on her womb and the fragile being contained within it?"

Carpenter, in his Physiology, says: "No sound physiologist of the present day is likely to fall into the popular error of supposing that marks upon the infant are to be referred to some transient though strong impression upon the imagination of the mother; but there appear a sufficient number of facts on record to prove that habitual mental conditions on the part of the mother *may* have influence enough, at an early period of pregnancy, to produce bodily deformities, or peculiar tendencies. But whatever the impression transmitted it must be of a character to modify the nutritive materials supplied by the mother to the fœtus."

Dr. W. A. Hammond: "The chances of these instances, and others which I have mentioned, being due to coincidence, are infinitesimally small; and though I am careful not to reason upon the principle of *post hoc, ergo propter hoc*, I cannot, nor do I think any other person can, no matter how logical may be his mind, reason against the connection of *cause* and *effect* in such cases. The corrections of the facts can only be questioned; if these be accepted, the probabilities are *thousands of millions to one* that the relation between the phenomena is direct."

Dr. Dalton: "There is now little room for doubt that various deformities and deficiencies of the fœtus, conformably to the popular belief, do really originate in certain cases from nervous impressions, such as disgust, fear, or anger, experienced by the mother."

Dr. Flint: * * * * "Still there are cases which cannot be doubted, but which, in the present state of our knowledge of development, and the connection between the mother and the fœtus, we cannot attempt to explain."

Dr. Joynes, in the *Virginia Medical Monthly:* * * * "Let any mathematician say how many chances there are against the occurrence of such by mere coincidence. It is *far more difficult* to believe that they were the results of coincidence than to believe that they occurred under the operation of *natural laws*, or influences, of the precise nature of which we are ignorant." In the case referred to, causes assigned were not afterthoughts. * * * He admits his "inability to explain these remarkable phenomena upon any known physiological principle. There is certainly no nervous connection between the mother and fœtus; it is therefore impossible to *understand* how her mental impressions can be stamped upon its body. * * * * But because a resulting deformity, presenting an exact correspondence to its apparent cause, cannot be accounted for by any known physiological principle, shall the *facts* themselves be denied? If so, how many things among the mysteries of life—especially concerning generation—that must likewise be denied."

In the *Biannual Retrospect*, 1869–70, Dr. Credé describes a remarkable example of malformation of the fœtus caused by amniotic bands. He thinks in the human ovum contractions of the uterus, or powerful emotions may produce changes of volume, such as Darst produced in his experiments upon hen's eggs. They surrounded the eggs with an air-tight envelope, or exposed them to changes of temperature, and thus often produced malformations.

In the Transactions of the Obstetrical Society of London, vol. vii, page 78, is a remarkable case reported by Hanmett Hailey, Esq. In the same volume, Alfred Meadows, M. D., reports an interesting case, and in remarks says: "I do not hesitate to avow my convictions formed after no little thought upon the matter, that the mind of the mother can and does sometimes so interfere with the ordinary processes of growth and nutrition in the fœtus, as variously to check or modify its development in whole or in part, and thus produce deformities or monstrosities." He then goes on to show the "relations of mind to matter, and of the power of mind over body. These forces upon us the convictions that mind does in some mysterious way operate across matter, something in the same way as the electric fluid will pass across a certain space between two conductors." He then takes up the subject of animal electricity "in its influence over the nutritive function." He claims "it is only in this way that we can explain the known influence of mental impressions on tissues, which are known to be destitute, or nearly so, of nerves." He thinks that this electric current may pass "along the umbilical cord, or even across from the inner surface of the womb at any point to the nearest surface of the child. * * * * To call these 'freaks of nature,' is to clothe our ignorance with a pretense of knowledge which a high-flown phrase enables us to assume." He believes there is as much "law" and "order" in monstrous growths as in the development of the most perfect beauty.

In conversation with a well known physician of this city upon this subject, he advanced the idea which bears some plausibility. Taking the blood in the light, not simply of a scavenger but as an organ, may not impressions upon the mind carry their influence to the blood; and as there seems to be no nervous connection between the mother and fœtus, but a continuous blood supply, may it not mould itself according to the impression?

In conclusion permit me to use the language of Dr. Coleman, *Virginia Medical Monthly*, 1875–6. He regards the subject as to maternal impressions "an open question. The fact that it cannot be explained does not militate against its existence. There is a difference between things incredible and things inexplicable. The one is opposed to reason; the other does not come within its domain. The animalcule, whose whole world is a drop of water, and whose life is a day, is no less a mystery than the leviathan of the deep. We know no more of the giant oak, whose growth is measured by the centuries, than of the sweet violet that blooms in modest beauty at its root. And when we come to matters spiritual, the incarnation of Divinity—the union of God and man—what do we know, and how impossible for us to comprehend. Yet, this must be believed, for upon this faith hinges our happiness for time and eternity."

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Art. 3.—Mono-Mania.

By J. BARR SMITH, M. D., Syracuse, Ohio.

A few years ago the unfortunate insane were supposed to be possessed with the devil, and not fit subjects for medical treatment. Filthy dungeons, chains and instruments of torture were the only treatment they received, except perchance, the juggles of a priest were invoked to cast out the devil. When a humane Frenchman proposed to unchain from their cells some of the milder cases, his proposition was received with fear by the vulgar, holy horror by the bigoted, and contempt by the physicians of the day. Long and nobly he persevered in his humane purpose, although considered by many insane himself, for daring to propose so ridiculous an idea, or if not actually insane, at best but a wild visionary, unworthy of notice. But when the experiment was tried, and a few milder ones unchained, the success exceeded his most sanguine expectations. Since then the treatment of this unfortunate class has improved, until the filthy dungeons and chains have given place to our magnificent lunatic asylums, provided with every comfort, convenience and appliance science has discovered, art devised, or mechanism constructed, not only to confine and restrain the raving maniac, but to send him home "clothed, and in his right mind."

The physician of general practice is seldom employed to test a case of insanity through its entire course, because they are usually sent to an asylum where they can be better taken care of than at their own houses, and where they are, or at least ought to be, treated by a physician who has made insanity a specialty. But the general practitioner cannot tell how soon he may be called into a court of justice as an expert, to give medical testimony in a case involving a question of insanity, and should be prepared to give such an opinion as will instruct the court and the cause of justice, rather than to injure his own reputation, and consequently the profession of which he is a member.

Insanity is not a disease, *per se*, it is one of the symptoms of various diseases, and does not exist without there is a physical lesion, that is to say, it is not as some of the older writers taught, a disease of the mind. Without a lesion acting on, or at least through the brain disturbing its healthy action, there is not, and cannot be insanity.

I propose only in this article to consider that division or class commonly called mono-mania, one madness; or insanity on one subject only, and sane on all other subjects.

Can a man be insane on one subject, and sane on all other subjects? It is true a man may steal—he may steal everything he can lay his hands on, he may steal whenever and wherever he had an opportunity, he may steal articles that can be of no use to him, be guilty of kleptomania, so-called, and yet, if he is physically sound, this kleptomania is but the result of education. It is moral depravity, and not insanity. When a man from his youth up has not been taught his duty to his God, his neighbor, and himself, who has never been instructed to respect the property of others, may, and will steal, just as faithful Musselmen would murder any one they heard offer sacrilege to their prophet, not because they are insane, but because they have never been taught to realize that it is a crime.

So also a man may pursue one idea until it becomes the ruling passion of his life, and not be a mono-maniac. He may, in pursuit of that one object, perform actions as absurd, as heroic, or as horrible as the ravings of the most confirmed maniac. We have an illustration of this in the burning of that noble old physiologist, Martin Servetes; the persecution of the Huguenots; the burning of witches; Old Knox knocking the tombstones to pieces; and the many martyrs who have died for opinion's sake. So also in nearly all the great reformers of the world who have left behind them noble monuments of devotion and heroism we now delight to honor.

If the pursuit of one object or one idea until it occupies their attention by day, and disturbs their sleep by night, proves men to be mono-maniacs, it will include such names as Daguerre, Arkwright, Howe, Fulton and many other worthies the world delight to honor. Doubtless many a man has been supposed to be a mono-maniac who has pursued one idea long and faithfully, but without success, that had he lived until that one idea had assumed a definite, tangible, practical form, (and which some day will), he would have ranked with the philosophers of the world.

There are mono-maniacs, however, that are really insane, and ought not to be held accountable by law. There are some whose vagaries run persistently in one direction, who are not only insane on that one subject, but on all subjects, and of right ought not to be held responsible. The vagaries of the insane differ so much in different cases, and in the same case at different times. One may fancy he has a glass leg, another that he is some great personage, and another may be a kleptomaniac or a pyromaniac, depending not so much on the severity of the disease, as it does upon the direction the vagary assumes. Perhaps I can better illustrate this by the history of a few cases of insanity. Mr. K., was insane, his vagary was that there were a great many beaver in a stream where no beaver had been known for many years, his traps were scattered for many miles along the stream, catching plenty of polecats, but no beaver, yet every morning for weeks and months he would go to look at his traps. Suddenly his fancy changed, when he fancied that he was John the Baptist, sent to a lost and ruined world to warn them to flee from the wrath to come, had his vagary taken the shape of stealing, he doubtless would have been a kleptomaniac, instead of trapping for beaver. A few years ago Wm. Trego was placed under the care of the Lancaster Infirmary Hospital Pennsylvania, as a mono-maniac. His fancy was that he was the owner of a great number of farms, now, as his was a harmless delusion, he was not very closely watched—well, one day he amused himself by cutting a stranger's heart out with a pocket-knife without any provocation, and the court that investigated the case, rightfully pronounced him insane, and not accountable to the law. The vagary of an insane man may cause him to fancy that he is John the Baptist, the owner of a great many farms, or has a glass leg, and may as suddenly change to an equally absurd or more dangerous delusion, and ought not to be held responsible.

Again, a man may have a hallucination. He may fancy he sees objects that do not exist except in his own diseased imagination, or hear sounds, strange and unearthly. If he knows the object his fancy has pictured does not exist in reality, he must be capable of comparing, judging, reasoning, consequently, not insane. So also a man may fancy he sees a ghost, and may be very much frightened by it, but if he does actually see some object his imagination gives to him the appearance of a ghost, he is not insane, or he may fancy he hears an unearthly noise, yet if he actually does hear a noise he is not, on that account, to be pronounced insane.

A man may have his day dreams as ridiculous, absurd and fantastic as the delerium of a fever. If he knows these *dreams* are not reality, he is not insane. On the other side, when he can no longer reason on the subject, but actually believes his hallucinations are true and no reason or argument can convince him of the contrary, I would doubt his ability to make a will, or transact any business. Again, when a man actually believes one of his children is not an heir of his body and actuated by this belief omits to bequest him any of his property, or discriminates against him in favor of other children, the question has often been raised in our courts, is he a mono-maniac on the subject? And juries are far too apt to temper their judgment with sympathy for the disinherited, but the demands of science compel us to examine this subject impartially and uninfluenced by sympathy.

In such cases the absence of positive proof on either side and the fact that some sane men require more evidence than others to convince them of the truth or falsity of an argument. The mere fact that a man believes a child is not of his begetting is no evidence that he is a mono-maniac on the subject. The reasoning on which he founds his conclusion may be false, he may have reasoned from false premises, he may be wrong, but his conclusion is none the less the result of reasoning. Again, a man may have an antipathy towards one of his children until it grows into hatred, and in the end he disinherits by his will. This child may have been as kind to him, so far as others know, as any of his children, at the same time, that hatred may have been formed and molded by a thousand circumstances, in themselves but trifles, but in the agregate sufficient to cause the father to disinherit him, and yet this is no evidence of insanity. It is my opinion that when a man is insane on one subject, or what is usually called a mono-maniac, he is not qualified to make a will, and ought not to be held accountable, whether his vagaries takes the form of kleptomania or trapping for beaver, or that he has a wooden nose, or a glass leg, at the same time I would make a distinction between mono-mania and moral depravity.

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Art. 4.—Medical Education.

A Valedictory Address delivered before The Muskingum County Medical Society, May 9th, 1878.

By J. S. HALDEMAN, M. D., Zanesville, O.

The fact is, in medicine we choose our calling. It does not select us. In theology it is otherwise. The calling selects the individual. The spirit points him out, and impresses him; and one not thus designated is really an intruder and base imposter. One eminent is this department, and evidently feeling his mission and true calling, said, "woe is me if I preach not the gospel."

I said we choose the medical profession, and yet, not every one is adapted to so important a vocation. Therefore it would not do for every one, who might desire, to boldly step into the medical arena. There are many prerequisites and important qualifications for such an undertaking.

The first we shall notice is, that it requires talent, both natural and acquired. I am aware, that public estimation holds, that no mind is too feeble, nor talent too contemptible for the study of medicine. Doubtless, many young men and modernly many young women, look out over the varied world, tinseled with every conceivable hue, and rambling in their imaginations through the different fields of the liberal professions, select the medical, because they think its knowledge is limited and easily acquired, and its duties most delightful and compensative; whereas they are arduous, and almost intolerable, and non-remunerative, very few grow rich merely by their practice. And when the practitioner of medicine makes riches the ultimatum of his pursuit, he invariably couples one, or two, or more purely secular vocations with that of his chosen one, before he can realize the beau ideal of his aspirations. Riches should not be particularly the medical individual's goal. Something grander, more elevating, and truly appreciable; to-wit: the comfort, the assuaging, and healing the varied besetments and infirmities of our race.

The sentiment, by the profession, should be promulgated, far and wide, among the numerous aspirants for the various professions, that there is no earthly employment which requires more real strength of mind, and comprehensive understanding, and diversified talents than the science of medicine. In this profession we are called upon to inquire into every source of knowledge; to discriminate between true and false theories; of the latter we have an abundance; and, they have sometimes thrown about them a very fair exterior, thus greatly calculated to deceive and work mischief. In it, we are called upon, not only to indifferently observe, but to pursue the rage of controversy—to decide whether this opinion or that is correct and practicable, advanced by different minds upon the same subject; and to point out and bring into discredit the superstitions of the ignorant, and the subtilties, in all their varied forms, of the learned. What non-introduced medical aspirant "is sufficient for these things?" Whose memory can be too retentive? Whose apprehension too quick and discriminative? And whose judgment too unerring and compassionate? None of these faculties should be minus with such an one, if he wishes to attain to medical lore, and share to any respectable extent its honors and emoluments.

In speaking of natural talent, with which I claim every medical aspirant should be endowed, or not enter, I particularly mean genius, or the faculty of inventing or discovering. I venture the assertion, that there is not a physician within the compass of my voice to-night, who has not occasionally, if not daily, discovered some new results from medicines administered, or improvements made from previous suggestions, either in council or from books read, or from self-meditation; or has invented something entirely new of which he had never read nor previously considered. Should these three results manifest themselves in one's practice, or any one of them, frequently or occasionally; to-wit; new discoveries made, improvements realized, and inventions devised. They will be prima facia evidence that such a one has not mistaken his calling.

Learning and knowledge, however extensive and profound, and however long a time it may have taken, and money to acquire them, will not alone make a good and successful practitioner. He needs the natural qualification named: genius. A celebrated character once affirmed, "a man must be born a physician;" he must have the innate nice perception to tell the characteristic traits of disease, and to select and apply medicines for its cure, and invent means, if need be. It is a thing, generally to be regretted, that there does not exist in the minds of medical men an inclination, deep seated, to refuse to take into their office and special custody, applicants as students, who betray intellectual or moral obliquities, and ignorance in subordinate branches of education. Especially should this obtain in our medical colleges. In this way much of the discredit which the medical colleges annually bring upon themselves, would be avoided, and the profession would be disencumbered of that odious mass of ignorance, the refuse of schools etc., so well calculated to stain its dignity and reputation. I am glad to see that some of our medical colleges are climbing towards a higher plane. Among them is the "Miami Medical." The Cincinnati LANCET AND OBSERVER, of March, 1878, has an editorial notice of this institution, and among the commendatory matters related, it makes this statement: "The graduating class numbered exactly half a hundred. The professors reporting a material increase in the number of students who had taken a literary degree before entering on their medical studies. This augurs well for the future standing of the profession. Let the colleges all earnestly insist on a preliminary education before permission is granted to matriculate, and a great advance will have been made towards the higher medical education that is demanded by the people, as well as the profession itself. Eliminate the unfit material at the very outset, and more than half the work will be accomplished." This school has taken the initiatory steps in this particular, and, in consequence, merits great praise. It is stated that "they rejected several applicants for matriculation who lacked a suitable preparatory education;" and, "also, that not all of those who were examined for a degree, were fortunate in obtaining the coveted parchment."

That there are difficulties in the study of medicine, all that have completed a course, and are actively engaged in its pursuits, or ever have been, will of necessity admit, very many of these difficulties arise from the nature and imperfectly developed condition of the science. The medical art; as has been well remarked by a very intelligent author, "is one of judgment, and not of rules." This declaration is axiomatic, the judgment must be brought into exercise, and our opinions all the while must be maturing, or rules laid down by ourselves or obtained by authors will be of very little avail. The divine has the authority of scriptures for his guide. The lawyer has the decisions and precedents of former courts and times. What was true yesterday, or in all the past, and binding in authority, or doctrine, is equally so to-day. Not so with the physician, he has no reliable standard to direct him in the hour of doubt and emergency. The founders, the fathers and the teachers of the art may assist him, but they cannot determine for him.

The principles of medicine, though in many respects good, and derived from correct data; do not, however, possess a degree of absolute certainty. Its theories are all imperfect. The human organization upon which our remedial agencies are ever and anon to be applied, is most peculiarly delicate and flexible; its structure is of the most intricate character; its laws form the first, up to now, have been but meagerly understood, and consequently, in the main, improperly obeyed; therefore its disturbances and embarrassments are continuous and multifarious, the complications of which become diversified, depending in a great measure upon the age, temperament, climate, food, unusual wakefulness, excessive labor, and undue exposure, and many other circumstances. And, then too, our remedies are greatly different and numerous, and they are becoming so more and more. It can as truly be affirmed of them in reference to this latter; to-wit, their discovery and increase, that there is no end, as it could of books by Solomon, when he said, "of making many books there is no end." Therefore, in consideration of which, the nature of very many of them will be imperfectly understood. It takes time and trial, and many times patience, to verify to any very satisfactory degree, the specific quality and effect any remedial agency will have when administered. Many times we think we have arrived to that point in some articles of the materia medica, and presume we have a sure thing; when lo, suddenly; and when we least expect it, they fail us! And, we are discomfitted, and it nearly begets in us a distrust in all medicines; or at least in reference to their particular specificness. Then, in the midst of such a dilemma of things; namely, absolute uncertain principles; imperfect theories; a delicate human mechanism; intricate structures; laws poorly developed, and still less understood; derangements ever occurring, and meeting the eye of the medical attendant; and the host of remedies spread out before him, the nature of which he so dimly understands, and, that have in some instances proved treacherous, and incurred sadness; to what can the medical practitioner resort in order to extricate himself? Where will he find the silken thread, or the golden mean to conduct him from this maze so inseperable to our cherished calling? Where, but in the resources of his own genius, strengthened by constant tuition, and directed by the judgment? In uttering these sentiments, am I saying too much? And does it not accord with the higher notions of the truly medically erudite in the ages past? The celebrated Vogel affirmed, that "there is no science which required so penetrating an intellect, so much talent and genius, so much force of mind, and so much acuteness of memory as the science of medicine."

It might not be amiss, nor perchance unprofitable, for a few minutes, to notice cursorily, what kind of knowledge the medical individual should more especially cultivate. He should endeavor to make all nature and art tributary to his science. He should roam through all animate and inanimate creation. He should examine the productions of the earth in all their diversified forms. He should explore its deepest recesses. He should also ascend and consult the heavenly bodies, and from these different departments, collect and bring to his aid important material, to ply with efficiency his vocation, and be furnished with constantly recurring ideas, new and old, which would inevitably, and unceasingly redound to the improvement of his art. At no time in the course of his practice should he feel, that he has graduated in the scientific departments we have alluded to, should he be favored with the longevity of a centenarian.

He should make every diligence, especially in his preliminary course, to cultivate a fair acquaintance with the Greek, Latin, and French languages, and if at all possible, the German and Italian, In the advocacy of this idea, I am aware, that I may meet with opposition from a very respectable portion of my medical brethren, but notwithstanding I must deal fairly, and express my honest convictions, and urge their study, from a consideration which I deem paramount; that the works of science have been written and mainly contained in them. These I would denominate the underlying studies for the physician, save the ordinary rudimentary ones, such as orthography, orthoepy, etymology and syntax, etc. These latter, it is taken for granted he would not fail to have acquired. He should be a reader of history, both modern and ancient. Politics can scarcely escape his attention and scrutiny. Books of poetry are never misplaced when found in his library, nor unprofitable when perused. The belles-lettres may also be added, to form a pleasant accompaniment, and serve as spices to make the others, so essential, more gustable. No one has a natural inclination, as a rule, for the study of the languages, especially for those denominated the dead ones. They are usually deemed dry and monotonous. This every linguist knows, from actual experience obtained, when in the halcyon days of his school life, he became perplexed and tired, running daily through the declension of some article, noun, or pronoun; or conjugating some verb through the mazes of its persons, numbers, tenses and moods. Then, how pleasant and enchanting it is to have in the scientific curricle of the medical student, some such oases as afore mentioned, for him to regale himself upon, and become invigorated, so that he may take fresh courage to pursue the even tenor of his tedious way. It is well that he should give, if possible, some considerable attention to the higher mathematics; to natural, mental and moral philosophy; to geology, astronomy, logic, etc. These are all very good, and a knowledge of them very desirable. If any one from some cause or another cannot attain to these, let him not decry them as non-essential and irrelevant to the medical profession; thereby prejudicing others just entering, and preventing them from familiarizing themselves with them. Such, sensibly remind me of the fox in Æsop's fables, that made successive attempts to reach certain beautiful ripe bunches of grapes he saw suspended high up on the vines, but all were futile, he could not reach them; becoming weary, he exclaimed in sad disappointment: "oh! they are as yet unripe and sour." So, many times, when from want of means, time or disposition, individuals fail to reach the liberal sciences, they make the chagrined outcry of the fabled fox, oh! they are as yet unripe, irrelevant, and hence, useless.

As I before intimated, I know it has been, and is still asserted, and too from respectable sources, from cultured individuals in the profession, that in order to practice medicine successfully, it is not necessary to be informed in all the subordinate studies alluded to. A plain education will suffice, one limited merely to a tolerably correct capability to read and write in the vernacular tongue. The reasons urged are, that all the books necessary to be consulted are now written in the same. Others have been translated, or can be, into it. This is mainly true; but after all it affords no justification for the neglect of an extensive acquaintance with the collateral studies. It this teaching were correct with the physician, then would it also be equally so, in reference to all the professions, in which the necessity of learning has never been called into question. If we are allowed to carry this notion of a limited education still further, to show its absurdity, we could with propriety advocate, that in order to cure diseases, we need not even possess the limited education named. Examples are not wanting in the past nor in the present time, to show that persons not able to read, have, notwithstanding, from long experience become pretty successful routine practitioners. When empiricism will do for us, all that is needed to remove bodily maladies, why spend so much time and money, and labor to acquire a respectable education? Ah! here lies the secret, and a cogent answer to the question, it will never add a particle to keep up, and constantly augment the material in the educational store of our art. The practitioner of to-day has something more to do than to keep in the old ruts, and prescribe alone the remedies of the fathers. He must make fresh tracks, and apply remedies advantageously, new and old.

The fallacy of this so called charitable mode of viewing the matter, must be apparent to all. I hold then as a self evident fact, and placed beyond the reach of any successful contradiction, that no one can prosecute the study of medicine with eclat to himself, and profit to others, who has not stored, and is not still storing, his mind with knowledge from science as well as from observation; and in this way acquiring and strengthening the happy faculty of reasoning. What important improvement, or additions will these merely routine doctors bring to our already accumulated stock of medical lore? Such have no habits of study. They frittered away their adolescent hours in sheer indifferency to such matters. It cannot be otherwise, but that in their ascending manhood, their intellects would rather contract than expand. Their reading would be limited, and their writings, if any, would be few and ill digested. What possible improvement and good then can come to the profession from such a source? We aver, that the physician, especially of this rapidly out-going nineteenth century, should not be merely a skillful routinist, but a thorough scholarly gentleman.

I have discussed, rather more minutely and extensively, than I, at first intended, the propriety and utility of the subsidiary branches to a medical aspirant. And I hope not without profit. They are all directly or indirectly relevant. In the remaining portion of our time, I shall allude, more particularly, to purely medical subjects. And in doing so, it will be but a mere allusion, without minutely discussing their merits or demerits. What is medical science? This question is pertinent. Perhaps among the numerous answers given by authors, and medical men irrespective of authorship, the one given by Dr. Gregory is as correct and satisfactory as any; to-wit: first, it is the art of preserving health; second, of prolonging life; third, of curing diseases. Now, this threefold work the practitioner of medicine should ever aim to do. What does it imply? Why, first a knowledge of anatomy, the structure of the human body. And this should not be acquired from descriptions or plates merely, but by practical and personal investigations, and dissections; and fully illustrated by comparative anatomy. Not only should the structure of the body be well studied, but its functions, and the laws by which they are governed. Here the individual would be met with insurmountable difficulties, at the very threshold, if he has not a pretty fair knowledge of chemistry and natural philosophy. A thorough acquaintance therefore, of anatomy and physiology is of paramount importance. Right here however, it is necessary for the medical gentleman to guard himself well against, too great an attachment to speculative physiology. He should endeavor more especially to deal with the real. Lengthened disquisitions have been artfully gotten up on generation and conception; on the processes of nutrition and digestion, their explanations, etc.; on the vitality of the blood, its proofs and disproofs; and yet we are nearly as much in the fog as ever. It is true, the perusal of them gives us pleasure, but then we are all the time grasping phantoms. It reminds me of the child's enthusiasm, at the edge of a stand of water, eagerly engaged in catching bubbles upon its surface. They are very beautiful and pellucid things, but when once enclosed in the hand, nothing is to be seen but a faint moisture. It is otherwise when we deal with tissues and organs. There we have something tangible and knowable. We can learn something of their mutual relations, and the many modifications they receive from external or internal agents.

The next thing, to the healthy functions of the system to be considered, is that of their diseased condition, called pathology; this also demands a laborious investigation at the hands of every medical person. Under this term is embraced the nature of disease in the abstract, which necessarily brings under review the various theories that have been promulgated in the different ages, and have formed noted epochs in medical history, to-wit: the classification of diseases, or nosology; their etiology, symptomatology, prognosis, and therapeutics. Take etiology alone, and it requires great and diversified knowledge to explore its intricacies and hidden resources. The causes of disease exist everywhere, both around and within us. The atmosphere, food, and drinks, all so essential to our existence, and well being; and the various products of human industry conspire to render life more agreeable, all of which, may at times work greatly to the derangement of our organic functions, if not to the destruction of the tissues themselves. Hence, when examining these causes, how essential it is, to be previously acquainted with the ordinary and extraordinary states of the several kingdoms in nature; to investigate the pure, undisturbed condition of the air, to compute the effects of temperature, winds, storms, tainted atmosphere from bogs and human effluvia, etc.; embracing the occult subject of the nature, laws, and history of epidemics.

Then also, naturally comes under our notice the materia medica. And here, what a wide field to regale itself in. We can never obtain too great a knowledge of the virtues and properties of any or all of its articles, however assiduously, constantly and minutely we may have been, and still are, studying them.

Perhaps, among the numerous, essential studies, pressing upon the attention of the successful practitioner of medicine, there is none more so than the department of medical literature. What I more particularly mean by the latter cognomination, is the particular history of medicine; the important and striking eras of the science; the rise, progress, and overthrow of its theories; the errors of its cultivators; and the base innovations that have been made from time to time, by designing, selfish and disappointed aspirants for honors. Dr. John Bell has well observed, "that whoever has neglected this branch of study, has a narrow mind, and prefers the little opinions of his particular master, to the accumulated wisdom of the ages." "He dwells," continues this intelligent writer, "with enthusiasm upon those theories which have first taken possession of his mind, and never is he able to emerge from the atmosphere of the particular school in which he was bred."

And last, though not least, especially to the advanced student, and the newly initiated into the practice, is the knowledge to be obtained from clinical practice. This I fear, though to some extent inculcated, and enjoined, is too greatly and generally overlooked, by private instructors, and colleges. After all this study we have suggested, and time therefore expended, and labor bestowed, it must be constantly reduced to practice, or it will be of but comparative little benefit. It is the great medium, by which any one can be made fit, to undertake an art for "preserving the health, prolonging the life, and curing disease." It is after all, the practical application of medical lore, which should form the incessant study of the physician, and which demands so imperiously the enlarged medical genius, without which learning and science are of but little force.

In closing, I would say, I have endeavored, as best I could, to show in what we should become educated, to properly accomplish the mission of our noble and beneficent calling. The first, and great duty then, is to preserve our health and the health of others. To this truth we should ever be alive. The old adage never loses an atom of its truthfulness in consequence of its antiquity, and should always be readily accepted by us: "that an ounce of prevention is better than a pound of cure." Also, a desire to live long is a noble one. I would that every regular physician might be granted this boon, and especially the members of our cherished Muskingum County Medical Society. One, many long years ago, when brought under very adverse circumstances, and when it was said to him, by one who was, or should have been very dear and affectionate to him, "curse God and die," said, "all my appointed time will I wait until my change come." No statement is truer, than the one, that no person has a right to take his own life, nor shorten it by negligence or otherwise, nor take the life of another, nor see that life is going out, when he could prevent it. The physician then, forget it not, is the grand almoner of the health, longevity and well being of his fellow man. To these interests he does, and always must look.

Art. 6.—Protoplasm and Motion.

Read before the Cincinnati Society of Natural History, May 7th, 1878.

By JAS. T. WHITTAKER, M. D.,

Professor of Physiology in the Medical College of Ohio.

There is no matter without force, (actual or potential) and there is no force without matter; hence we can no more conceive of the creation of force than of matter. Creation of force as of matter has reference simply to the form in which the force appears, as light, heat, electricity, etc., With the recognition of the eternal conservation of force we have simply to change the condition of matter to change the forms of force. Motion is converted into heat by the friction of two pieces of wood, or into light in striking a match; heat is changed into motion in our common steam engine; electricity is converted into motion in the galvanic battery or into light in the electric candle. So heat, light, electricity, all the forms of physical force, are said to be correlated, that is, mutually or reciprocally convertible.

The force exhibited in animal and vegetable life is no exception to this law. In its operation, it appears as heat, electricity, motion, etc., In turn it is itself an evolution of motion, of light and of heat. For life is only the liberation of forces stored up in the food. These forces rendered latent in food are heat and light from the sun. Equivalents of heat are locked up in the plant in various chemical combinations to be unlocked in the animal body in its various forms of force, muscular movement, secretion, intellection, etc. The light and heat from the sun are in turn transmutations in like manner of motion, the primal force pervading the entire universe.

The doctrine of the conservation and correlation of force, though first announced by Grove before the London Institution in 1842[*] did not receive general acceptance until Mayer and Helmholtz of

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[*] It is interesting to know that Prof. Samuel Jackson, of the University of Pennsylvania, in a published introductory lecture delivered at the Spring opening of the session of 1837-8, declared the correlation of the forces in the following terms: "Physical phenomena, according to the class they belong to, are referred to a few simple laws, as gravity, caloric, affinity, galvanism, electricity, magnetism, *all of which, it can now scarcely be doubted, are modifications of one great law or force.*" (*F. G. Smith*).

Germany and more especially Joule of England had succeeded in establishing the equivalents of the various forces, that is the amount of one kind of force necessary to produce a certain amount of another kind of force. The correlation or convertibility of forces is based upon the conclusion that the whole amount of force in the entire universe is always the same. The force may change its form continually, but it may never change its whole amount. Joule first discovered the equivalent of heat to mechanical force. The amount of heat necessary to raise the temperature of a pound of water one degree would when properly applied raise a pound of water 772 feet high. One degree of heat is therefore equivalent to the mechanical force represented in an elevation of 772 feet. Force, it must be understood, is not always apparent, that is, it is not always in active operation. Force in operation is known as actual force; that which is silent, at rest, so to speak, or latent, is known as potential force or energy. The arrow speeding in its flight or striking its target represents actual force, while the bent bow (unsprung) represents latent or potential force. The force in the bow is stored up muscular force to be set free it may be at once or it may be after years. Plants now living contain recently stored latent or potential force, while coal fields are vast magazines of force stored up ages ago. In all cases the original force is from the sun, a transmutation of its light and heat. The amount of heat and light emanating from the sun is sufficient to account for all the force, of whatever form, manifest upon the earth. According to the pyrheliometric measurements of Pouillet and others three or four equivalents of heat are received upon every square foot of the earth under perpendicular rays from the sun. The amount received daily is equivalent to that engendered in the consumption of five billions tons of stone coal which is again equal to 66 billions horse power every hour. If the entire quantity of solar heat received in a year were uniformly distributed over the whole surface of the earth, it would suffice to melt a universal layer of ice 100 feet thick or bring from the freezing to the boiling point, an ocean covering the earth to the depth of 15 miles. Yet the small pencil of rays which the earth receives, at a distance of 95 million miles, is only the one two hundred millionth part of all the heat irradiated from the sun (*Tyndall*). This heat at the surface of the sun is so intense as to volatilise iron and other metals which we are unable by any known method of application to reduce to a gaseous state upon the earth. The enormous quantity and intensity of heat from the sun can only be fully comprehended with some proper conception of its magnitude. As Helmholtz has put it: "Its diameter is so great that if you suppose the earth to be put into the centre of the sun, the sun itself being like a hollow sphere, and the moon going about the earth, there would be a space of more than 200,000 miles around the orbit of the moon lying all interior to the surface of the sun." The heat and light from such a vast source of power are thus infinitely more than sufficient to account for every form of force upon the earth without the necessity of any local genesis.

Thus force is no more created anew in the manifestations of life than is matter in the construction of the living body.

Different machinery or apparatus is required to effect the various changes of matter and force. We convert chemical force or affinity into galvanism in galvanic cups, magnetism into electricity with iron bars and wires, heat into motion with boilers, cylinders and pistons, etc. That physical may be converted into physiological force there is requisite animal or vegetable matter, protoplasm. As there can be no force without matter, there can be no knowledge of action without knowledge of construction.

Our knowledge of the construction of the body from an historical standpoint naturally falls under two divisions, that acquired before the discovery of the microscope, and that acquired since.

The older anatomists and physiologists made us acquainted with everything that could be seen with the naked eye. They described the position and relations of all the organs of the body, defined what we now consider the grosser characteristics of the various tissues and established their general properties. The older anatomists and physiologists drew what we might call the general outlines of all the structures of the body, and with a fidelity which is the highest tribute to their diligence and skill. We read with astonishment the accurate descriptions of Vesalius and Fallopius, of Sœmmering and Bichat, and with admiration the ingenious experiments of Harvey and De Graaf. But the older anatomists and physiologists could not penetrate to the minute construction of the tissues. Histology in the true sense of the term, was a sealed and unopened volume. It was only with the invention of the microscope, more especially with its perfection, that such studies became possible.

The honor of this invention is claimed by the French, the Italians and the Dutch. The truth is, however, that lenses were in use, as such, in ancient times. Aristophanes informs us that globules of glass, known as 'burning spheres' were sold by the grocers of Athens. It is hardly possible to imagine that the magnifying power of these spheres could have escaped observation; indeed, we read in Seneca among the 'Natural Questions' the following statement in proof. "However small and obscure the writing may be, it appears larger and clearer when viewed through a globule of glass filled with water." So-called 'water microscopes,' consisting simply of a drop of water attached to the end of a brass wire, were still in common use at the beginning of the 17th century. We have evidence of the ancient use of lenses for magnification in the engraving of characters and letters too small to be visible to the naked eye. We would be hardly prepared to admit that vision was keener centuries ago than now, so that we must believe the eye to have been aided with the lens. Thus Cicero speaks of an Iliad of Homer small enough to have been enclosed in a nutshell, and Pliny mentions that Myrmecides "executed in ivory a square figure which a fly covered with its wings." In fact, veritable lenses have been exhumed from Nineveh and Herculaneum.

The microscope, thus, like every other invention was in no sense a sudden discovery. It reached from time to time a process of development, to then fall into oblivion for years, or for centuries, and be again revived with improvements to give it new impulse in its gradual evolution.

The first individual to give the microscope permanent place among the acquisitions to the study of nature was Zacharias Janssens, a celebrated optician in Holland, (1590). As every discovery in every field of science sooner or later comes to be utilised in the study of medicine, it is not surprising to learn that scarcely 25 years had elapsed before Italian and Dutch anatomists (Malpighi and Leeuwenhoek, 1628–1723), were busy with the microscope in the study of the human body. Though the instruments then in use were exceedingly clumsy and defective, it was with their aid that the most remarkable phenomena in nature were disclosed. The last link in the chain of evidence establishing the circulation of the blood was only completed with the discovery of the blood corpuscles and capillary net work by Malpighi, whose name is still transmitted with histological elements in the kidneys and spleen, and the essential element of the semen—to select only the most striking examples—the spermatozoids, were first described by Leeuwenhoek, to whom they had been shown by one of his students, Von Hamm, in 1677.

But the revelations of the microscope, at this period in its history, were, as Frey remarks, "more in keeping with the curiosity loving spirit of the times, than with any definite principle or basis of investigation." Penetration to fundamental structure was still impossible, until the study of histology had received fresh impetus in steps towards the perfection of the microscope, taken first by Dutch and German opticians, Van Deyl and Fraunhofer, in the first decade of the present century. The simple lenses of Malpighi and Leeuwenhoek were now speedily duplicated many times, combinations of different lenses, of different kinds of glass, were quickly arranged to obviate aberrations of sphericity and chromatism, and "the clumsy and deceptive implement of the last century was transformed into the elegant and accurate instrument of the present day."

Now then, for the first time, was rendered possible a penetration to the minute construction of the various tissues. A host of observers were soon engaged in histological study, Müller, Purkinje, Wagner, Valentin, Henle among the pioneers, and one distinguished above all the rest, "not only on account of his own researches, but also on account of his collocation and arrangement of the discoveries of others, and his deductions thence of general laws, which are to be regarded as the foundations of modern histology." (*Tizzoni*). The "cell doctrine" as established by C. Th. Schwann, (1838), marks this first great epoch in the science of histology.

According to this doctrine, as subsequently elaborated more especially by Reichert, Kölliker and Virchow, every tissue and organ of every living thing, plant or animal, is built up of an aggregate of cells, or the products of cells. An organ, the whole organism is an union of cells, just as a state or association is an assemblage of individuals. "The greatest discovery of the microscope is not, as might at first appear, the revelation of a new world of microscopic life; it is the discovery of the simple elementary structure of the human body, and of every organised body in nature; it is the astonishing discovery that every living thing, from man to the invisible insect, from the oak to the infusoria, however different their apparent natures, are constructed upon one plan from one and the same elementary form." (*Ranke*).

A typical cell is a spheroidal body, consisting of an envelop (or cell wall), of so-called cell contents, (protoplasm, bioplasm, cytoplasm, sarcode, etc.,) including a smaller eccentrically situated spheroidal mass, the nucleus, which in turn includes one or more still smaller particles, nucleoli.

Such a cell is the ovum, or primordial cell, from which every organised body develops. The ovum differs from all other cells, in the body of man in being visible to the naked eye. It is the largest cell in the body, measuring $\frac{1}{120}$ of an inch in diameter. Hence, in describing the size of cells, the ovum is put at one extreme, while at the other is placed the red blood corpuscle, with a diameter of $\frac{1}{3500}$ of an inch. Cells vary in size between these extremes. There is full as great variety in shape. Fat cells are rounded, liver cells polygonal, epithelial cells flat or cylindrical, muscle cells fusiform, connective tissue cells filiform, while bone cells, with their radiating canaliculi, and nerve cells, with their numerous poles and bright nuclei, present very peculiar, even fantastic shapes.

The whole body is thus reduced to cells of definite size and shape. We obtain thus the ultimate atoms of organisation. "The cell theory in physiology corresponds to the atom theory in physics, but cells have the advantage over atoms, of being visible and available." (*Küss*).

The question now arises which of the constituents of the cell, the wall, the contents, the nucleus, or the nucleolus is the most essential element?

It should be remarked first that the term "cell" has now a very different significance from its first use. The discovery of Schwann in histology was really based upon the discovery of Schleiden, in botany, that sections of young plants under the microscope presented the appearance of the cells of the honeycomb. Schwann observed that epithelial cells present the same appearance, hence, the title of his work, the *Uebereinstimmung*, etc., the similarity, or identity in construction of animals and plants, and hence, the term cells.[*] It was a subsequent elaboration of this disclosure at the hands of a number of observers, the discovery that all the organs and tissues are constructed upon the same plan, so that the cell in modern histology means more than mere form or shape; it means the ground plan, the origin and individuality, the ultimate anatomical element, the chemical laboratory, and the physical and physiological centre in which all the phenomena of life are evolved. To the physiologist the cell is "the soul."

As to the relative importance of the various constituents of the cell, it is known (Bergmann, Bischoff, Kölliker), that the embryonal stage of certain animals exhibits cells composed of nucleated contents entirely deprived of a wall. Moreover there are animals whose whole life is comprised within the narrow circle of a single cell, consisting simply of a homogeneous mass of contractile substance, without either nucleus or wall, (rhizopods, amœbæ,[*] etc). Again, there are forms of life consisting of multiple cells, sponges, radiolariæ, etc., devoid of wall and nucleus. So Max Schultze and Lionel Beale regard the wall as an addition, rather than as a necessary constituent of the cell. According to Schultze, the subsequent formation of the cell wall indicates a limitation in the life of the cell, i. e., it is a sign of decrepitude, while Beale regards the wall as a product of the cell, the formed material in distinction to the forming, or germinal matter, the protoplasm. Kölliker looks upon the cell wall as the sign rather of full development and maturity. The cell wall, more dense and firm than the remaining constituents, is the protecting envelop of the more delicate structure within, and at the same time regulates the diffusion between its contents and circumambient media.

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[*] The first intimation of the cellular structure of animal tissue was that of Johannes Mueller, who showed that the chorda dorsalis of the fish consists of closely apposed cells with peculiar walls. Mueller also first distinguished nuclei in the analogous cells of the chorda dorsalis of the frog. Besides the interest which attaches to this structure as the primitive vertebral column, the chorda dorsalis has also the additional historical interest of having been the tissue in which 'the cell' was discovered.

If the tail of a dead tad-pole, after having been for 24 hours in water, be cut through at its point of origin and the chorda dorsalis expressed by gentle pressure from the head downwards, suitable particles of it may be examined under the microscope, (best with a 6 per cent., solution of common salt). The cells appear of irregular polygonal form, those from the middle of the chord longer, those from the periphery smaller, (Gescheidlen). We have now the picture first seen by Schwann. The likeness to the cells of the honeycomb or to vegetable cells is exact.

The essential value of the nucleus, according to Kölliker, who takes a middle ground between the older advocates of the cell with all its parts, and the more modern advocates of the protoplasm theory, is " to secure to the protoplasm a definite form and function, and more especially to officiate as its proper organ of reproduction." The ovum, or primordial cell loses its nucleus, (as one of the first signs of fecundation), while the new nucleus, developed in the impregnated egg, is an entirely new formation. As to the spermatozoid, it is wholly and exclusively composed of the nucleus of a cell, the remaining constituents of which have been left behind it in the seminal ducts.

If then the cell wall be relegated chiefly to a protective office, and the nucleus, (with its contents), to the function chiefly of reproduction, it is in the cell contents, the protoplasm, that we must locate, the remaining essential processes in the life of the cell. The lowest forms of life consist of protoplasm alone, protoplasm in shapeless mass, without form or wall. Such are various forms of the amœba, and vast masses of gelatinous matter, (deep sea ooze), endowed with motion, assimilation, reproduction, etc., have been dredged (Huxley, Thompson, 1868), from the bottom of the North Atlantic Ocean, at depths varying from 5,000 to 25,000 feet.

Much doubt has been cast upon the nature of this so-called

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[*] Towards the close of the last century. O. F. Mueller gave the name of Proteus to certain forms of infusoria observed to be in ceaseless motion, and M. Borg de St. Vincent called one of these forms, (the Proteus diffluens), "*Amiba*," a name subsequently changed by Ehrenberg, to harmonise with his etymology, to "*Amœba*." (***Milne Edwards***).

Bathybius, (*Urschleim*), by the fact that deep ooze has been dredged from other seas not endowed with these phenomena, but the later observations of Bessels (1873) confirm the existence, at the bottom of certain seas, of masses of pure protoplasm, "very sticky, mesh-like structures with perfect amœboid movements," which "took up particles of carmine and other foreign substances," and which "showed active motion of the nuclei."

The protoplasm, or cell contents, constitutes the essential element of the cell, while the wall and the nucleus are to be regarded as additions of structure in cells, or masses of protoplasm, differentiated for special purposes or for higher grade of development. The perfect cell, that universally present in the construction of all the organs of animals and plants, so highly developed as to possess organs, consists of contents, wall and nucleus, so that the cell with all its parts must still be regarded as the ultimate physiological element. *

In studying the phenomena of life, we have, therefore, to consider the properties of protoplasm as observed in the forms of life consisting only of single and simple masses of protoplasm, and as likewise observed in more complex structures composed of myriads of masses, (cells), each individual, independent, and in a sense isolated, yet all connected and brought into harmonious action by common fluids, (blood, lymph, etc.,) in which they are continuously bathed, and by "facile threads of communication," nerves, bonds and links of association.

We observe then first as the most striking endowment of protoplasm, the property of motion. Sarcode, (sarx, flesh), a synonym of protoplasm, was used to imply the property of motion inherent in muscle tissue. Motion is the property from which all other properties are derived. This motion may be partial, manifesting itself simply as a protrusion and subsequent retraction of some portion of the substance, or it may, in detached and isolated masses, be general, effecting the locomotion of the entire mass. The amœba, for instance, an individual mass of protoplasm, extends from its substance prolongations to encircle some foreign body, the nutritive principle of which it absorbs and incorporates, to then release itself or flow away from the indigestible residue. A very distinguished botanist was once deceived into the belief that a starch granule had become converted into living protoplasm by observing the disappearance of the granule and its substitution by a moving mass of matter; the apparent substitution being only an envelopment of the granule, for the time being, by a living amœba in its vicinity. The white blood corpuscle may thus gradually protrude itself through interstices in the capillary wall to effect migration to distant parts.

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* Myxomycetes, (protoplasm devoid of walls or nucleus), are fungi found in abundance on decomposing vegetable matter, moist flower pots, bark of trees after a rain, etc.

Hyphens, (protoplasm with wall but without nucleus), are fungi found on fruits, bread, etc., kept in a warm wet place. The largest specimens are obtained from the surface of manure spread on bricks and kept in moist places.

Amœbæ are the best examples of protoplasm with nuclei but without walls. These animalcules are found in myriads in stagnant water exposed to a hot sun. Some forms of amœbæ are also devoid of nuclei.

The mammalian ovum exhibits the typical isolated cell with all its parts, nucleus, contents and wall. It may be readily expressed from the ovary after puncture of the Graafian follicle.

In the early life of all cells (the embryonal stage of complex structures), the property of motion is always manifest, but as the cell matures or becomes senescent, it loses this property in most cases; it becomes quiescent, and exhibits its vitality only in other ways.

Individual masses of protoplasm being invisible to the naked eye it is only possible to study their motion under the microscope, but the general motion effected by aggregate masses is apparent in the contractility of muscles, locomotion of members, etc. We have in the changes assumed by various fishes and frogs, handsome illustrations of the motion of cells. The change of color is effected by changes of shape in cutaneous pigment cells. The colored masses of protoplasm (pigment cells) approach to or withdraw themselves from the surface and thus vary the color of the animal. If the pigment cells move uniformly in the skin, the animal is uniformly varied in color. If only some of the cells move, the animal appears spotted or striped or ringed, etc.

The chameleon is so universally known for its changeability as to have its name used as an epithet to express vacillation of purpose. But the chameleon is not so changeable as has been represented. It is not able to assume any color whatever, nor is it able to take on the color of any object upon which it may rest. Basking in the sun it may appear blue, green or red, according to the incidence of the light, or it may appear dark, black or iridescent. As different chameleons differ in the natural color of the unpigmented part of the skin, an individual may be white or yellow. Moreover it may show blue, green, gray and brown. All these colors it may exhibit, but it may not exhibit all colors. The change of color in the chameleon is due to the presence in the skin of pigment cells having prolongations which, under nervous influence, may penetrate the interstices of the superjacent layer of unpigmented skin tissue, and spread out to cover the surface wholly or in part. The physical laws regulating the reflection, absorption and interference of rays of light in different media fully explain the different colors the animal may assume. What especially interests us in this connection is the property of motion with which the pigment cells are endowed, and which enables them, in obedience to stimulus from the nervous system, to assume different shapes and positions with reference to the super and circumjacent skin tissue, and subjacent blood vessels. When a chameleon is poisoned with strychnia, it becomes uniformly light in color from complete retraction (tetanus) of the pigment cells. This retraction represents the active condition of the cells. When the animal is sick, it is spotted, some of the cells being retracted, others protruded. Section of individual nerves of the skin produces the same effect, corresponding cells being passively protruded (paralysed). The black spots now show dendritic prolongations. Section of a series of nerves produces a black stripe. A mechanical, chemical (turpentine) or electric irritant applied to the skin induces a retraction of the cells, and thus give rise to a light or yellow color at the surface of irritation. The cells relax and spread themselves out (passively) under the light and heat of the sun, hence, the animal under such conditions is dark or black. In darkness the cells are actively retracted, hence, the animal is pale. If parts of the body be protected from the sun, as by bands of varnish, these parts remain light, while the rest of the body is dark. Psychical influences likewise affect its color. In the passive state it is uniform in hue; excited after food, in strife, etc., it is variously tinted. Thus "so far from being a symbol of falsehood, the chameleon is rather a symbol of frankness, as every emotion is depicted upon its surface." (*Brücke*).

But the motion of pigment cells is not independent. It is directly under the control of the nervous system. The motion of muscular tissue, though inherent in the muscle protoplasm itself is also influenced by the nervous system. The best example of protoplasmic motion entirely independent of the nerves, is that exhibited in the undulations of the ciliary processes upon the surface of certain epithelial cells. *

Ciliated epithelial cells are cylindrical, conoidal or goblet shaped masses of protoplasm, from whose upper free surface protrudes a thicket, (not simply a few, as always represented), of fine hair like processes, the cilia. Such structures have long been recognized in certain infusoria, for which they furnish means of locomotion, prehension of food, and for which, also, by creating currents, they minister directly to respiration. Purkinje and Valentin discovered their existence in vertebrate animals, and in man. Such cells line the entire respiratory tract from the nasal cavities, except the space within the anterior nares, down to the finest bronchioles, (but not the air cells). Ciliated cells tapestry also the cavities accessory to the nasal, the antrum of Highmore, the frontal sinus, etc., the Eustachian tube, and, for the most part, the cavity of the drum of the ear. A tract of epithelial cells is also found in the epidydimus, the efferent ducts of the testicles, and in the female, in the parovarium, the Fallopian tubes, and the body of the uterus, extending into the utricular glands. Ciliated cells, though much smaller and more delicate, occur also in the various cavities of the nervous system; in the lateral ventricles, the floor of the fourth ventricle, and the central canal of the spinal cord.

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* It is customary to call the vital movements of protoplasm spontaneous. But this only shows that we are ignorant of the forces by which the movements are originated and sustained. We no longer term the movement of striated muscle spontaneous, because we know the external influences or stimuli through which it can be excited. And so, also, there can be no doubt that as soon as we have acquired a knowledge of all the external influences by which movements in protoplasm can be induced, we shall cease to term them spontaneous. * * * Thus, in stating that protoplasm is capable of active or vital (spontaneous) movements, we have by no means admitted the existence of an immaterial force. (*Stricker.*)

The cilia (cilium, an eyelash), are for the most part sabre shaped, with a broad attached base and a free pointed extremity. They are implanted directly into the protoplasm, (the cell), of which they are part, and are not inserted into a membrane or an upper distinct layer of protoplasm as once believed. At rest they are slightly inclined, mostly towards the exterior of the tube or cavity in which they are found. In motion they strike with their broad or flat surface and return, like oars in skillful hands, by feathering the edge, to nearly but not quite a perpendicular position. The stroke is the result of an active contraction (motion) of the protoplasm while the less quick return is due to a simple passive elasticity. But the cilium in its stroke is not passively moved by the contracting protoplasm. On the contrary, it is the cilium itself which is endowed with the contractility, and the cell when free (as in the detached masses found in the secretion of coryza), is passively moved about by its vibratile cilia. This contraction and relaxation is exceedingly rapid, too rapid, indeed, to be individually visible. Cilia move in the frog at the rate of twelve times in the second, and in warm blooded animals much faster. It is only when contractility has become partially exhausted that individual motion may be observed. In molluscs, where the cilia are of very great size, their motion produces undulations which may be seen in its totality as glittering waves even by the naked eye. The motion of tracts of cilia has been not inaptly compared to the undulations of a field of grain agitated by the wind, or to the glistening of a river in the sun.

Cilia are entirely independent of the nervous system. Section or stimulation of nerves produces upon them no effect. They contract when removed from the body, and survive somatic death for hours, even nine hours in the frog. Nevertheless ciliary motion in life is not irregular; all the cilia in a given tract move in a definite direction, and produce definite currents in the circumambient fluids. It is for this reason that particles of mucus or other foreign bodies are propelled upon the surface, tossed from place to place, towards the exterior. The force of cilia is really astonishing. Particles of coal dust suspended over them by means of a drawn thread of sealing wax are lifted and pushed on at the rate of 1-200th of an inch per second. It was by means of such an experiment that Kistiackowsky was able to prove that induced currents of electricity stimulated the cilia, contrary to opinions expressed hitherto, to greater activity, or renewed it after a period of quiescence. Heat quickens, cold retards their motion. * Dilute alkalies act as direct stimulants, perhaps by simply diluting the thickening mucus in which they float. Chloroform suspends their activity, or in excess disorganises and destroys the cells.

Ciliated epithelial cells are best obtained for study by scraping the roof of the mouth or the pharynx of the frog. A few cells may be detached in man by inserting a feather into the upper cavities of the nose. The largest cilia are found in the molluscs, in the so-called beard of the oyster or clam. Tracts of cells are secured by dissecting off parts of the pharyngeal mucous membrane of the frog. Calliburces constructed a very elegant apparatus to cause cilia in motion to strike upon and revolve a glass cylinder, and thus record their own velocity of movement. Bowditch exhibited this motion more simply and effectually by cutting through the body of a frog just below its anterior extremities, after destruction of the spinal cord, and passing a glass rod through the œsophagus. The body of the frog is gradually pushed along the rod by the motion of the œsophageal cilia. The front part of the jaws should be cut away to prevent too great friction, and the rod should be dipped in salt water to secure the best action of the cilia. If the œsophagus alone be slipped over the tube the motion will be much more apparent. (*Cyon*).

A spermatozoid is a detached ciliated cell; the whip-lash tail is the cilium, and the head is the nucleus of the cell. The spermatozoid is affected in like manner with ciliated epithelium by the various agents mentioned.

Motion has been studied also in the lymph and pus corpuscles, in cartilage and in connective tissue cells. Certain corneal corpuscles have been observed by Recklinghausen to penetrate tissue interstices and wander about, like the white blood corpuscles, to considerable distances. It is by means of motion of this kind that young cells may arrange themselves in position in the original construction of the various tissues and organs. But the motion of the highest physiological interest in this connection is that which takes place in the interior of the cell itself.

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* The activity of the movements of protoplasm is greatest at about 100° F. At 32° F. they become extremely sluggish, or cease altogether. The ova of trout, however, which may be regarded as a kind of protoplasm, undergo segmentation perfectly in iced water, whilst they soon cease to move at ordinary temperatures. (*Powers*).

Such movements are known as molecular movements, because they consist of agitations, tremblings or rotations of the fine granules in the protoplasmic mass. These movements are not to be confounded with those exhibited by inorganic bodies floating free in fine particles, the movement described by Brown, and known as the Brunonian movements, for in the case of the inorganic body the movements are merely passive followings of the currents in the fluids. Protoplasmic molecular movement is active. It may be seen to advantage in the cells of the salivary glands, in living blood corpuscles (white) or in pus corpuscles when water is added to the fluid in which they float. These movements cease only with the death of the cell. A stroke of electricity which kills the cell stops the granular movement at once, proof that it is in no sense a passive phenomenon. The hair of the stinging nettle exhibits protoplasmic molecular movement even more clearly than any animal structure. Such a hair consists of one elongated cell filled with intra-cellular fluid; its transparent wall being lined with soft protoplasm. The molecules or granules in the protoplasm not only tremble like the salivary corpuscles, but they actually circulate in a regular stream. The protoplasm itself undulates in different directions. A shock from a magnetic electro-motor apparatus arrests the regular system of waves, and suddenly projects the protoplasm in promontories into the intra-cellular space. During this attack, so to speak, the molecular motion ceases, to recur only when the protoplasm resumes its normal motion.

The ovum, or primordial cell, is, however, here again, the best object for study of this kind of motion. The portion of protoplasm which ministers to nutrition, the food yolk, is observed to be in constant rythmic contraction, while that portion which constructs the embryo, the formative yolk, splits and separates in fissile contraction. In various infusoria the rotation of the vitelline spheres in the interior of the ovum is probably due to the action of cilia, for many zoophytes and molluscs in very early life are covered with cilia by which alone they effect their progression; at a later period of life the animalcule may lose its microscopic oars, to become sedentary or even fixed upon other bodies. The cilia in these cases are developed in the interior of the ovum itself.

The motion of the molecules in the ovum is the cause of its development. That is, motion is the essence of reproduction. The assistance of the male element is not by any means a necessity in reproduction. In many animals, notably in insects, continued progeny (ten to twelve generations) are produced without copulation.

Generation of this kind, partheno-genesis, or virgin generation, instead of being a mysterious exception, is the rule in all animals up to a certain grade of development. Bischoff found that all the first stages of development, disappearance of the germinal vesicle, appearance of a new nucleus in the interior of the yolk, condensation and volume reduction of the yolk, movement phenomena in the yolk, finally even the first stages of segmentation, all these changes occur in eggs which have never been impregnated, and in eggs which never are impregnated at all, but which have been discharged from the ovary simply on account of their maturation. Moquin Tandon has seen the process of segmentation of the yolk in unimpregnated frog's eggs, and Van Beneden has shown that the first phases of development in the rabbit are entirely independent of impregnation. These changes are not dependent, therefore, upon the formal union and copulation of a sperm and germ cell, nor upon any chemical or dynamical effect of the spermatozoids, for they occur without the presence of spermatozoids at all. They depend upon the motion inherent in the molecules of the ovum itself. But in the rule we observe that the intensity of this motion is not sufficiently great to lead to further development and production of form. It must receive additional force, and probably also a definite direction, in order that the further movements of development, those requisite to the complete construction of the embryo, may ensue. The egg receives this further addition, strength and direction of motion from the spermatozoids, whose individual mass movement is proof that the matter of their composition is also in the condition of intense activity. Bischoff in making this statement concludes; " we possess nowhere else such a perfect insight into the cause of organic movements as here, and the view which this insight gives will be as satisfactory to the reasoning mind as every other application of the law of the conservation of force."

The case of the bee affords a striking confirmation of the fact that development up to a certain grade is possible without copulation, while more perfect development requires assistance. Thus the queen bee in captivity or isolation continues to breed drones (males) almost indefinitely, and under conditions which preclude the idea of any utilisation of sperm stored up in the past, while the production of workers (females) only ensues after copulation. In fact, the observations of Leuckart and Siebold prove that spermatozoids are always found about the micropyle of the ova of females, and never about the ova of males.

The essence of reproduction, therefore, so far as may be comprehended by the limited understanding of man, is a transmission of motion, as the remaining manifestations of protoplasm, (the phenomena of life), are transmutations of the same primeval force.

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Art. 7.—On the Examination of Persons Alleged to be Insane.

By W. H. DeWitt, M. D., Mt. Auburn.
Late of Longview.

The law of this State prescribes explicitly that individuals or persons before being adjudged insane shall first be examined by a physician. The object is evident, if it were not so, many persons would be unnecessarily placed in confinement, as it is I regret to say this mistake does occur. Under the existing law every patient is examined by a medical man and his affidavit sworn to before a magistrate, a warrant from the Probate Judge of the County in which the patient resides, and a certificate from the examining physician must accompany each individual, in order that he or she may gain admittance into any of the asylums throughout the State.

In private asylums they do not as a rule demand these legal proceedings. The warrant above mentioned is made out on, or by virtue of the certificate of the examining physician. In the examination of persons alleged to be insane, it matters not what the object may, be, the greatest care should be exercised. The testimony of the medical man called upon to go through these legal formalities will decide whether the person is sane or insane, if insane, whether he or she is a fit subject to be confined within the walls of an asylum. The position of medical examiner is therefore a very responsible position, and should be filled by persons thoroughly acquainted with the subject. There is nothing so annoying to the officers of asylums, as to be compelled to receive patients accompanied by ill constructed, *worthless*, certificates, and, it is this carelessness and want of precision that has prompted me to offer some suggestions in this direction.

In filling out certificates every precaution should be taken, no space should be left blank or unoccupied.

There are persons suffering from mental unsoundness for whom the examiner would not be justified in signing a certificate, and to decide this is often difficult and perplexing.

As a rule the patient should not only be examined carefully, but the friends and relatives should be called upon to give such knowledge as they may posess bearing upon the case. They are often very reluctant to give such imformation, their answers to questions are vague and uncertain. The examiner should not be satisfied with indefinite and negative answers, but should press the matter until satisfied that the truth has been arrived at, should he fail to gain all the circumstances in the case from one friend, others should be called until accurate information is obtained, or as nearly so as possible.

It is important to state in the certificate the duration of the attack, whether hereditary or not, and whether the patient is dangerous or suicidal, these are points that should not be over-looked, particularly to the latter. It is of the greatest importance to those in charge of Asylums to know whether patients committed to their care are dangerous or suicidal.

In the examination of alleged lunatics, the examiner should be governed in making up his dicision very largely by the conversation and demeanor of the subject before him. The legitimate object should be in every case to determine beyond a question, whether the subject is of unsound mind or not, and if so, whether his or her insanity is of such a nature as to require seclusion.

Persons suffering from acute disease do sometimes develop temporary insanity, yet there could be no just reason ascribed for sending them to an asylum. There are very many harmless feeble minded persons that require no special attention and that are not amenable to treatment, these should be allowed their liberty, it would be unjust and inhuman to place such under lock and key. To be able at all times to discriminate between those who should be placed in confinement and those who should not, necessarily requires a great deal of care and attention. It is remarkable how many persons are confined in Asylums throughout the country, that are really not entitled to such a residence, this is owing in very many instances to carelessness and down right *ignorance* on the part of the examiner. It is not uncommon for certificates to be signed alleging the insanity of persons, in whom there is no evidence of mental aberration. The asylum records of this County alone from 1860 to 1870 show that 46 cases were received and discharged as not insane. In all cases of doubtful insanity it is well to give the patient the benefit of the doubt, under no circumstance should the examiner commit a person to an Asylum in whom he questions the existance of insanity, if one examination does not prove sufficient, make a second and if necessary a third. There are some cases where insanity is unquestioned, that the examiner will experience very considerable difficulty in gaining access to, after having obtained access, they may refuse to converse. Insane persons are often-times very suspicious, they may imagine that the object of such a visit is to inflict injury upon their person, or if known to them to be a physician they may at once suspicion the object of his visit. In all such cases the examiner would be justified in resorting to some stratagem, to define rules applicable to all such cases is to say the least, difficult, as a rule the plan of procedure should be shaped according to the phase of the individuals insanity. Again there are cases where the insanity is doubtful, no difficulty will be experienced in observing and conversing with this class, their insanity is rendered doubtful by its mildness or by an effort on the part of the patient to conceal it, they often exhibit a good deal of ingenuity in their efforts to baffle detection.

When brought face to face with an individual supposed to be insane there are several things to be considered, the examiner should mark well the patient's conversation, notice his appearance and if possible ascertain whether delusions are present or not, in very many, the mental condition will be recognized at once, for example, the insanity of the melancholic, or the acute maniac could not well be over-looked; but when called upon to test the mental capacity of the monomaniac and those whose insanity consists in acts rather than in words the task is not so easy. No class of persons afford as little satisfaction in examination as monomaniacs, they converse well upon all subjects but those pertaining to their delusions, and unless the examiner chances to hit upon their delusions he may converse for some time without detecting any thing wrong.

These are the cases that may necessitate two or three examinations before a definite conclusion can be reached. In engaging insane persons in conversation it is useless for the examiner to introduce topics that do not concern them, he should ascertain as nearly as possible the individuals' weak points, and then bring his forces to bear upon them in a generalship manner, he should, while in conversation, observe the manner, appearance and dress of the person, there may be something peculiarly suggestive or striking in his behavior. There may be an unnatural degree of exaltation, or an opposite condition, that of depression. Again the countenance may be stamped with unmistakable evidence of insanity, the dress may also be peculiarly suggestive, it is not uncommon for acute maniacs to array themselves fantastically.

It is always desirable and highly satisfactory, in all examinations of this kind to detect delusions, they are unmistakable evidence of a diseased mind, it must not be inferred from this that insanity does not exist in the abscence of delusions, far from it, insanity may and does exist without delusions.

If the examiner is told by friends of the patient that he has strange ideas or delusions, he should require them to state as accurately as possible what they are, after having gained such information a systematic course of questioning can be followed in most instances. If in conversation the subject affirms that he is some distinguished personage, or that he is the possessor of immense wealth, when actually penniless or perhaps in moderate circumstances, or finally that he has committed some unpardonable crime for which he is soon to be executed, there should be no hesitancy in making out and signing a certificate of insanity. But if a systematic course of questioning fails to elicit any thing strange or peculiar, and a positive denial is given to the statements made by friends, the examiner under such circumstances would not be warranted in filling out and signing a certificate. There should be no hasty conclusions arrived at in such cases, "discretion is always the better part of valor," other opportunities will be offered no doubt for examining the patient. The character, of individuals or persons giving testimony, their motives, etc., should be well considered. Their only object may be to seclude the individual out of personal hatred or malice, or with the view perhaps of defrauding them out of property, etc. Insane asylums of late years have become highly respectable (with perhaps a few exceptions.) "They are very convenient receptacles for persons who from age have become a care to the household. Husbands whose wives have unfortunately become somewhat feeble minded and distasteful, find the asylum a highly convenient lodging place for them." There have been examples of this class in nearly every asylum, throughout the country. Before examining patients, all the knowledge possible should be obtained on the following points:

1. Name of patient, age, nativity, residence.
2. Occupation, pecuniary circumstances, etc.
3. Whether married, single, or widowed. If patient has given birth to children, state number, and date of last birth.
4. What has been the duration of the attack, and have there been other previous attacks. If so, state the form of each, the duration, etc.
5. State whether the exciting cause of insanity was *moral*, such as religious excitement, disappointment, fright, etc., or *physical*, such as the intemperate use of alcoholic stimulants, fever, injury to the head, etc.
6. What have been some of the most prominent indications of insanity that you have noticed. Has the patient strange ideas or delusions, if so state what they are. Has any change occurred recently in the symptoms.
7. Is the disease hereditary, if so, state whether on the paternal or maternal side, or both. Is there any predisposition to nervous disorders other than insanity in the family.
8. Have any members of the family died of pulmonary consumption. Was the father and mother temperate.
9. What was the original disposition and intellectual capacity of patient, habits, passions, or prejudices, is the patient addicted to the use of liquor, opium, tobacco, etc.
10. Is the patient incoherent on numerous subjects, or on but one. If but one, state what it is.
11. Are there lucid intervals, remissions, or exacerbations of ex-

citement, and if such changes occur, do they follow the law of periodicity.

12. Has the patient shown any disposition to commit suicide, or to inflict personal injury of any kind. If so, how recently and by what means, and is the propensity now active.
13. Is there any disposition shown to injure others, or to destroy clothing furniture and other property.
14. What are the patients habits. Cleanly or filthy.
15. Has there been any very remarkable change in the habits, disposition, opinions, feelings, conduct, sleep, appetite, state of bowels, etc., of patient.
16. Has the patient exalted ideas of self and matters pertaining therto.
17. State whether the patient has been under treatment, by whom and with what effect.
18. Has the patient been secluded or subjected to any form of mechanical restraint.

These and many other questions may be asked, often-times an answer will suggest other questions. The examiner should not be satisfied with the testimony of one alone, but that of several should be brought into requisition, the knowledge obtained from one may be in whole or in part contradicted by others. All the points in evidence should be carefully weighed and considered, by persuing this course, in very many instances the examiner can satisfy himself before seeing the patient that something is wrong.

In those cases where there is an absence of delusions, where the intellectual faculties remain perceptibly undisturbed, the examiner should be governed altogether by the *moral* change wrought in them, there is in such an actual and unmistakable perversion of the feelings and emotions. Those things that afforded them pleasure and happiness when in health now exert no influence over them. Those once most dear to them are now their worst enemies, and their worst enemies their chosen friends. In deciding on these cases a comparison should be instituted between the individual of today and the individual of yesterday. If the examiner has known the patient, and been familiar with his disposition etc, he will be able to appreciate the change with little difficulty. If on the contrary he has not known the patient, he should then depend largely upon the evidence of his immediate relations.

Cases arise where the insanity is alleged to consist in strange actions and eccentricities. These are the cases that occupy the border land of insanity. They not infrequently puzzle the examiner, when questioned as to their peculiarities, etc., they will either pay no attention to what is being said to them, or they will offer a score of explanations in justification of their many peculiarities.

Another class of cases are those whose insanity is characterized by criminal acts. The most careful scrutiny should be exercised in the examination of such. The examiner should not infer because a most rash act is committed, that the individual is insane. Crime of itself cannot be held as evidence of insanity. It is not for the examiner to determine whether the act was justifiable or not, his business and only legitimate province should be to determine whether the individual committing the act was sane or insane, whether the impulse originated in a healthy or diseased brain, if the offspring of a diseased brain it can in most instances be detected with little difficulty.

"The Act of violence (Says Dr. Maudsley) whatever form it may take is but the symptom of a deep, morbid perversion of the nature of the individual, of a morbid state which may at any moment be excited into a convulsive activity, either, from a powerful impression from without producing some great moral shock, or by some cause of bodily disturbance, intemperance, sexual exhaustion, masturbation, or menstrual disturbance.

There are women sober and temperate enough at other times, afflicted with an uncontrolable propensity for stimulants at the menstrual period, and every large asylum furnishes examples of exacerbations of insanity or epilepsy coincident with that function. Where there is a condition of unstable equilibrium of nerve, any cause internal or external exciting a certain commotion will upset its stability, just as happens in the spinal cord under similar circumstances.

By his acts as well as by his speech does man utter himself, gesture language is as natural a mode of expression as speech, and it is in insanity of action that this most dangerous form of insanity is expressed, most dangerous indeed because so expressed." It has been supposed by some that the criminal act is the first symptom of a diseased brain. This doctrine I question very much, if the examiner will take the trouble to trace the matter back and carefully study the patient's previous history he will find I think unmistakable evidence of insanity.

Dr. Sankey says: "I have taken the precaution to read a large collection of reports published from time to time upon the state of mind of persons accused of different acts of violence. I have never yet discovered a case in which an act of violence was committed by a lunatic as his first insane act, there are several cases in which the patient was not considered insane by his own relations or by inexperienced medical practitioners, but who on the close scrutiny of the physician who had studied insanity were proved to have been insane for a long period." Dr. Blandford says: "I think you will find if you go to the root of the matter, that the act which is supposed to be committed under the influence of insane impulse is rarely if ever the first symptom of insanity or brain affliction shown by the alleged lunatic, you may be told by the friends that they have never seen any insanity in him, but some people cannot see it in five out of six patients in an Asylum. If you can get sufficient information you will probably discover that the patient has had a former attack from which he may or may not have been considered recovered. How is the examiner to determine whether the individual is insane or not, this he can rarely settle by one examination, he should make it convenient to see him at different times and under varied circumstances, get as complete a history of his life, anticedents, etc., as possible, ascertain whether there is any predisposition to insanity in the family, or whether at any previous time he has been insane, or shown any evidence of mental instability. Study carefully his motives for committing the act, whether premeditated or not. It is very important for the examiner to know whether the patient has been intemperate, received any injury to the head or been subject to epileptic attacks, epileptics are prone to commit acts of violence just prior to or after an attack. Should the examination develop the fact that the patient is an epileptic, that will settle the matter beyond a shadow of doubt.

Cases arise where physicians are called upon to sign certificates for those who though not insane in the ordinary acceptation of the word, are nevertheless not of sound mind, their alienation from sound mind being that of imbecility or weak-mindness. Here the examiner has no guide from the past as in other forms of insanity. There is no past sound condition with which to compare the present, he must therefore of necessity erect some standard of mental soundness. In those cases where there is little or no mental capacity the task is easy, but in those cases where memory, etc., is not materially defective, the task becomes more complicated. It is well for the examiner to bear in mind that in imbecility there is usually if not always more or less moral obliquity. Their habits are viciated, disposition low and cunning, and many of them furnish true examples of kleptomania.

Still another class are those whose mental decadence is the sequel of insanity, epilepsy, and other brain diseases. In this form the examiner has some guide from the past with which to compare the enfeebled present. The mind once strong and active, is feeble, the memory failing, frequently this is a consecutive state following some attack of mania or melancholia. Continued and repeated epileptic attacks are very apt to undermine and finally completely destroy the intellect, examples of epileptic dementia are to be found in every asylum throughout the country. It is very important then for the examiner to ascertain whether they have had at any previous time an attack of insanity, or been subject to epilepsy, all such persons if sent to an asylum must be accompanied by a certificate. A failing and defective memory is a most prominent symptom, and it is for the examiner to determine whether the degree of defect is sufficient to render them incapable of caring for themselves and sufficient to place them out of the pale of sanity. In the legal eye a sane man must be of sound mind, memory and understanding.

Again, the physician may be called upon to examine persons who feign insanity. This has been practiced in all civalized countries and in all ages. The vagrant finds the asylum a far better and more inviting home than the jail or work-house. The criminal fearing the strong arm of violated law, assumes the garb of the imbecile, or raving mad man, to shift his crime from his shoulder.

First of all, discover whether there can be any motive for feigning insanity, usually the examiner will experience little difficulty in determining the true nature of such cause. For if the disease is assumed, they are simply imitators, and as such they are generally ignorant of the peculiarities, symptoms, etc., of the form of insanity assumed, and must, therefore, of necessity, be very clumsy personators. Occasionally a talented, educated person will thus seek to escape, but usually criminals are found in the lower stratum of society. If the person pleads at the time he committed the act, he did not know it, or was unconcious of it, or stoutly denies having had any connection with it, the examiner should then carefully investigate his previous history, learn whether he has been an epileptic, or suffered from any other form of cerebral disorder, and finally, whether he has received any injury to the head, sufficient to disturb the mental integrity. If the examination develops the presence of epilepsy, it should contribute largely in his favor.

If on approaching the patient he should become loud and boisterous, remember that the real insane man at the approach of a stranger is generally quieter, and less demonstrative. It is a fact worth bearing in mind, that feigned insanity is always over-colored. If, as they frequently do, he assumes the roll of the acute maniac, he will very soon exhaust himself and sleep, for none but a genuine lunatic can withstand the constant strain and excitement. In the early stage of acute mania, patients seldom sleep, unless under the influence of powerful hypnotics. A valuable means of diagnosis in such cases is to be found in the administration of certain medicines. In real or typical mania there is a certain insensibility or resistance to the action of drugs, such as opium, chloral and emetics. The quantity required to produce sleep, catharsis and emesis in the malingerer, would produce little if any effect on the real insane man.

In conclusion, let me say that it should be the aim of every examining physician to see perfect justice rendered the patient, you hold a vast amount of power, the power to deprive him of liberty, you either allow him to remain in the busy world, or shut him up behind barred windows. In such examinations do not try to puzzle or confuse the patient. This can easily be done if he is inferior in intelligence, and a sane man be made to appear insane, or at least very untruthful. For the time at least, in a certain sense, he is the accused, accused not of crime, but a defect rather, and you are his attorney. If there is any doubt, allow him the benefit of it, until doubt succumbs to certainty, examine the writings and letters of the patient carefully, they are powerful aids in detecting the mental status. The whole style may reveal something, or may-be the delusion so guarded in conversation will be brought to light.

Translation.

Cysticercus of the Conjuctiva.

By DR. CARRERAS ARAGO, from "*La Cronica Oftalmologica.*"
(Cadiz, Spain, 1877),

[Translated by THOMAS C. MINOR, M. D., Cincinnati, O.]

There has been a remarkable spread of tænia in this country, and, without having changed our customs in a transcendental manner, it is necessary to recognize that some special cause has contributed powerfully to this increase. Dr. Lentamendi, in his most useful journal, *La Salud*, has addressed the general public and proclaimed, with his characteristic energy, against the consumption which goes on in all parts, imitating the habits of the English of incompletely cooked and even almost raw meats. We recognize, in reality, that this is one of the sources from which the production of the complaint is derived. The notable cases of cysticercus cellulosis in the eye, presented to the Academy of Medicine at Madrid, one of them in the retina, which was the subject of an interesting discussion in the International Opthalmological Congress, at its session in London, 1872; the other in the anterior chamber, and another, finally, in the conjunctiva, of which we now propose to give an account in this journal, in compliance with a promise made some time since, has led the author to study the question with some care, for the purpose of determining the reasons relative to the causation of and also, explanation of the increase of the tænia and the means of combatting it. Without intending to enter fully into this question, a matter reserved for treatment in the Academy on account of certain opinions we propose to present, we may be permitted to make some remarks regarding the case that has prompted this article.

M. L., aged forty-nine years, of sanguineous temperament and strong constitution; a native of Spain, living in the immediate neighborhood of Vilazar de Mar. The patient has always enjoyed good health and has never suffered from disease of the eye. A short time since a small elevation suddenly presented itself at the inner corner of the left orbit. This elevation was accompanied by hyperæmia of the surrounding conjunctiva and increased in size from day to day, finally assuming the form of a cyst. The patient, disturbed by this manifestation, decided to call in Dr. Percet, a distinguished physician of the town, for the purpose of employing the remedies considered most useful for the cure of such affections.

Dr. Percet, examined the patient and noticed at the inner canthus of the left eye, in the semi-lunar fold that covers the lachrymal caruncula, a small elevation in the shape of an encysted tumor which measured eight millimetres in its vertical diameter and five millimetres transversely. This elevation was of a whitish yet transparent color, presenting at its center a yellowish point, and produced, by its contiguity, the hypertrophy of the lachrymal caruncula and the slight hyperæmia, likewise inducing the projection of the aforesaid cyst. Not causing the slightest pain of any kind, the patient was advised to await its gradual and insensible development, with the trifling inconvenience it produced, which was plainly comparable to the annoyance arising from a foreign body. The cornea was healthy; the pupil normal; the humors remained transparent; in fact, the bottom of the eye offered nothing particular on opthalmoscopic examination, and its functions were performed with the greatest regularity, without the least alteration of accommodation or refraction.

No doubt remaining as to the existence of an encysted tumor, Dr. Parcet was convinced as to the necessity of its extirpation, yet, should he treat it as a simple serous cyst, as an encysted foreign body, or as a true cysticercus? In fact, having visited with a certain physician, another case of cysticercus in the anterior chamber (that I likewise had the honor of presenting to the Academy of Medicine), he communicated to this physician his suspicions, based mainly as much on the special appearance of the tumor and its mode of development, as on that he had seen and read in the "*Iconografia oftalmologica de Sichel.*" We searched the bibliography of this treatise, and compared our case with that described by Sichel. The similarity was clearly established, as our case had the same symptomatology, and the same general features—

my suspicions being thus strongly grounded, I declared my diagnosis to Dr. Parcet for the first time, fully believing that we had encountered a cysticercus.

The patient accepting the operation, let us pass on to its performance:

I dissected out the cyst with a pair of curved scissors, removing it from the sclerotic and completing its extirpation; operating with the greatest care, for the purpose of avoiding perforation. The open surface remaining in the conjunctiva, bled freely and diminished the tumefaction. The patient at once noticed more liberty in the movement of the eye; the feeling of a foreign body disappeared; the sensation of pain, due to the operation, yielded promptly to the applications of compresses soaked in cold water, which were frequently renewed for the purpose of checking inflammation, restraining hemorrhage, easing pain, and preventing fever in the eye. Finding the patient much refreshed by this treatment, I applied a roller compress for the purpose of approximating the lips of the wound, and, to facilitate the cicatrisation, allowing it to remain for three days, and, in this manner, succeeded in completely curing the malady.

On examining the extirpated cyst, we observed in its walls a strong yet somewhat elastic tissue, which diminished on approaching its center—at the yellowish point it was thin, as if tending towards perforation. On opening the walls with a fine bistoury a small quantity of liquid was expelled, which surrounded the cysticercus, and there immediately appeared at the opening, a somewhat long and narrow elevation of a clear whitish pearl color; successively, after slight compression, a rounded body, fine, delicate, silklike, of an azure white color, presented itself. There now remained no doubt that we had verified our diagnosis, and had really been treating an entozoa.

At a cursory glance the cysticercus, which measured five millimetres in its vertical diameter, and three transversely, presented below the shape of a very small kidney bean, of an azure white color, with a brownish yellow tint at its centre, where it offered a sort of unbilical depression, from which projected a brilliant pearly white elevation. A microscopic examination cleared up all doubts, as we were able to distinguish the head and suckers at the extremity of the neck which, covered by transparent and vesicular elevations, armed the distinct pearly appearance of the body and caudal vesicle, which presented a semi-opaque whitish azure tint.

Cysticercus cellulosis is a somewhat rare affection, observed for the first time at Dantzig, by Raum, in 1832; then by Haering, in 1838; afterwards by Ettling, Currier, Sichel, and Græfe. We are not certain who first found it in Spain, or what the time may have been. The first case I observed, in which it was discovered and described, was presented to the Academy of Medicine (Madrid), in June, 1874. In fact, we consider that it may have existed on more than one occasion, and passed unperceived, confounded with other affections. To one well qualified, the symptoms and characteristics of the disease are such, that it is very easy to make a differential diagnosis. Relative to lipomas and dermatoid cysts, these tumors are generally considered to be congenital; permanently fixed; presenting a more or less lobulated form; endowed with somewhat greater mobility; showing themselves in the immediate vicinity of the cornea; finally, they are generally associated with one or more hairs—a greater degree of resemblance is presented by local cysts, which are usually situated in the palpebro-ocular folds, and which, examined carefully, do not offer the essential characteristics of cysticercus in the conjunctiva. The rapidity of its formation, since in two or three weeks of incubation the cysticercus already assumes the size of a harvest pea, enlarging promptly up to the period of its complete development, its situation in the corner of the eye; its partial mobility; its remaining adherent to the sclerotic at its posterior portion; the absence of pain; the special appearance which the whitish or yellowish tint of the tumor offers, contrasting with the bright yellow spot which it presents at its centre, where it is thinner; the solid and transparent head and neck of the animal; and, finally, the more or less obscure and fleshy tingings, surrounded by some vascularity, of the conjunction enclosing the cyst—neither a prognosis made with much care, nor the treatment, offer much danger. The solid cysticercus being left alone, produces merely local symptoms, and not to treat it, is to preserve the entozoa complete. As a clear proof of the malady, nothing can be more simple than treatment. Make an incision in the conjunctiva corresponding to the tumor, dissect and separate it from the sclerotic, using great care for the purpose of avoiding the section of any muscle or tendon of the eye. In removing the cyst, seize it with forceps at the posterior portion, where most resistence is offered, and in this way avoid rupturing its walls, and of the caudal vesicle—any other procedure is apt to lacerate and rupture the sac which surrounds the entozoa, and allows its liquid contents to escape, thus contracting its walls and causing their destruction.

The cysticercus cellulosis, which is met with in man, is a vesicular entozoa, the larva of the *tænia solitaria*, which presents a more or less spherical vesicle, united to an almost cylindrical body and forms a thin neck, terminating in a thicker extremity, or perhaps, the head, presenting the characteristic of four elevations, with a corresponding number of suckers, at its circumference, and at its point, an obtuse cylindrical and imperfect proboscis.

Generally, the cysticercus presents itself encysted, as in the case we have just described, which offered three sacs for inspection; one, formed at the expense of the conjunctiva, in which the parasite resided; the second, which completely surrounded the entozoa and had an opening to the edge of which the third sac adhered; the *caudal vesicle*, which almost completely covered the entozoa. Perhaps the body, neck and head project from or enter the same assuming, in the latter case, at the opening, the appearance of a small pennywort.

Gruze discovered the cysticercus in 1774, in a leprous hog. Two years later it was met with for the first time in the human body, in the eye, the discoverer being Werner. Porbal, likewise, in his work on "Medical Anatomy," published in 1803, stated that he had met with a foreign body situated between the retina and the choroid, which, without doubt, belonged to this species of entozoa. We now come down to 1830, at which period Scholt and Lemerring saw it for the first time in the anterior chamber, in cases that happened to be of the same kind. Since then, the cysticercus has been met with in almost all the membranes and humors of the eye. Raum and Hæring observed it in 1838, in the sclerotic conjunctiva; Appia and Currier, in the epithelium of the cornea; Sichel, in 1843, in the skin of the eyelid; thanks to the important discovery of Helmholtz, Græfe was able, in 1853, to examine it perfectly in the vitreous humor; Desmarres, in 1856, in the retina; Græfe, a little later (1863), met with it in the orbit, and (1864), in the crystalline lens.

We have now shown the cysticercus cellulosis to be a larva of the tænia. Not to present the different evolutions that this entozoa undergoes in its development would be to not understand the relationship existing between such beings. Thanks to the labors of Siebold, Kuchenmeister, Van Beneden, Leuckart, and others, the confusion regarding this subject has been cleared up, and we can now observe the tænia in its different phases of development, the same as any other animal. It is admitted, at the present day, that one of these animal entozoa never presents itself without a germ of identical nature; which perfectly explains why the cysticercus and tænia are the same animal in its greater or lesser degree of development.

If any doubt remains on this particular point, it is only necessary to compare the similarity which exists between the head of the *cysticercus fascicolaris* in the rat, and the head of the *tænea crassicolis* from which cats suffer. This alone sufficed for Siebold to infer the relationship that exists between the two animals. Better still are the experiments of Kuchenmeister who, in 1835, introduced into the digestive tube of a woman condemned to death, a certain number of cysticerci, which proved clearly, on autopsy, that when a cysticercus adheres by its suckers to the walls of the intestine, it separates into a true tænia. The experiment of Leuchart may also be mentioned, this observer noted the development of the tænia in a mare, two months after the animal had swallowed cysticerci taken from measly pork. Many other experiments might be quoted, among others, that of Humbert, in Geneva, who likewise suffered from a tænia within three months after having swallowed, with his food, fourteen cysticerci.

Bearing in mind the different evolutions the tænia undergoes, let us fix our attention a moment upon one point, i. e.: the peculiarities the germs or egg present as to the preservation of their germinative properties. They resist the action of alcohol, also, the most extreme degree of heat and cold, dryness and moisture, and permit, even under these circumstances, a great propagation. Whether taken with animal or vegetable food, or, with drinks, they immediately undergo the necessary transformation which converts them into tæniæ.

There are four conditions under which the entozoa may present itself, i. e.: the *egg*, *cysticercus*, *tænia*, *concurbitinus*. The egg contains a small embryo, which is inarticulated, and provided from birth with three pair of hooks, these fix themselves to suitable tissues and thus beget a new individual, passing on to the formation of the *cysticercus cellulosis*, with its caudal vesicle filled with germs, to which is connected a body, longer than broad, followed by a narrow neck terminating in a head provided with four suckers and a double crown of hooks. By gemmiparous generation, it is able to produce other similar animals, completing their development and converting them into tæniæ, precisely that which occurs in the digestive tube, when the cysticercus seizes the walls of the mucous membrane with its hooks, and, losing its caudal vesicle and transparency, develops many successive articulations, which likewise become particular organisms, provided with the needful elements to individualize themselves, and lengthen out in a tapelike form. The tænia is preserved in this condition up to the time of generation, at which period, its rings beget a large number of small eggs that, increasing in size, disintegrate the articulation. Some of these particular organizations separate and have an independent existence, forming what is known as the *cucurbitinus*, which, crawling about in the fecal matter, lives an isolated life for some days, but, at a later period, finally propagates the small eggs it contains which are endowed, as we have before stated, with a powerful and unalterable germinative property.

In this condition the germs or larva, generally mixed with the excrements, are spread over fields, serving as a manure to enrich vegetation. Deposited with leaves, excrement and other waste material they remain concealed in the pasturage frequented by such animals as rats, hogs, and cattle; or washed along by rains, make their appearance in deposits of water; giving rise to three principal sources of propagation, i. e.: sometimes, with the vegetable food; sometimes, with animal substances which contain them; at times assuming the form of eggs, now and then that of cysticerci. With drinks they are able, in all cases, by passing into the digestive tube of man and being transported into the general current of the circulation, to appear at some other point of the body, becoming converted into the true tænia if they seize with their hooks the walls of the intestinal mucous membrane.

It is an easy matter to understand why the egg, cysticerci, or tæniæ, are present in the intestines. It is difficult, however, to explain the existence of the cysticercus in the conjunctiva, and much more still in the anterior chamber and in the retina, as we have had occasion to observe. If we agree with Baillet, the cysticercus transports itself to distant organs by perforating them with its hooks, giving as the proof of this the manner in which the traces of tracks are left in the parenchymatous organs, and in the other parts of the body, by the migrating embryo; understanding that the entozoa follows the same progressive march as the echinococcus, as for instance, going from the intestine to the liver without penetrating by the vessels. We can admit of no other road than that of the circulation in the case of the egg of the tænia, travelling from the intestine to the eye, particularly to the retina or to the anterior chamber. From which it is inferred that admitting this theory, it does not necessarily lead us to support the doctrine of spontaneous generation, even in those cases most difficult to explain. Since Della Chiago demonstrated the existence of the *polistoma* in the blood, there can be no donbt as to the existence of this entozoa in the same, in which case, it must have penetrated the vessels, been absorbed by the lymphatics, or, better still, traversed their walls. Moreover, Darain, in his article on the *Cestoides*, in "Deschambre's Dictionary," cites experiments made for the purpose of demonstrating the transmission of the *tænia* of man to cows, in which these animals were forced to swallow large numbers of tænia eggs, and among the organs invaded, the heart was one of the principal, being found to contain cysticerci in the interventricular spaces. We see it is possible, under these circumstances, for the blood to be one of the chief means of propagating the eggs of the tænia, and, thus explaining their transmission to enclosed cavities. as, for instance, the eye, cerebrum, heart, ect. On this supposition, we believe that the entozoa taken up by the blood produce an embolia, which ultimately undergoes evolution, dilates the vessels, traverses its walls, and continuing its development. is transformed into a cysticercus.

Since is is such an easy matter to develop and also to disseminate the eggs of the cysticercus, which may be considered as the originators of the tænia? This entozoa not being well established in our country, we believe it possible to prevent its spread and further development by destroying the tænia in its various stages of formation. For this purpose the greatest watchfulness should be enforced, and all articles suspected to contain or to conceal its eggs or propagating germs should be inspected meats, such as pork, beef, and mutton should undergo a careful examination. It should be made an offense, punishable by law, to import diseased meats. If it is not required to completely exclude such meats, by far the better plan, let them be subjected to a boiling carried on at a high temperature, let the meat be cut into thin pieces, and by this process the entozoa may be, perhaps, destroyed.

In Spain great numbers of cattle are found which have been imported from Africa; some of these animals are infested by the *tænia* and the *cysticercus.* Meats, principally pork, enter into our commerce; although some of these meats come from various points in Spain, yet the chief source of supply is derived from foreign countries. These meats are not always of the most desirable quality, and their importation should be watched with the greatest care. We attribute, with Dr. Lentamendi, much importance to the inspection of meats, particularly uncured articles, believing such viands to be the most instrumental in propagating the cysticercus. We also agree, with Dr. Gine, that preventitive measures are essential; fully believing that the plan he has proposed in his important work on "Public Hygiene," is a good one, i. e.: 1st. To inspect hogs, after the slaughter of such animals, and by microscopic examination of the parts supposed to be infested by the cysticercus, to exclude from the market all those found to contain a number of cysticerci. 2nd. To classfy such frauds among the forbidden crimes, and allow the abrogation of all contracts of sale made under such circumstances. 3d. To let the public know the dangers arising from the consumption of poorly cooked pork, more especially the kind not guaranteed. It is the cucurbitinus, and, consecutively, the eggs, to which we attribute the principal source of propagation of tænia.

For this reason it is necessary to adopt measures to prevent animals, principally hogs, from eating excrement. Stockyards should be kept clean. The water supply should be ample and of a pure quality. If at any time an animal is discovered to be suffering from tænia, its excrement should be destroyed by fire. We all know how little attention is paid to the source of propagation, and even man himself does not hesitate to mix his excrement with that of animals, using the mixture for the purpose of manuring land. It is owing to such a condition of affairs, that the germs of the tænia are found in drinking water, and also, to a certain extent, in vegetables. Some of these germs may be swallowed by animals, forming in this manner a continuous chain of sequence, the eggs passing into cysticerci, the cysticerci into tæniæ, and the latter, in turn, assuming the form of cucurbitini, infecting anew the soil with which plants are manured, and the animal receiving nutriment from the same. This will fully explain the widespread of tæniæ in certain countries, where the entozoa has been common since remote times; take as example of this, the territory of the province of Garona, as far as Requesens, in Catalonia; some points in the Island of Majorica; Limousius, in France, etc., etc.

We notice, every day, that more importance is attributed to the eggs and larva of the tænia, as the propagating germs of an entozoa; and, if we do not treat with deprecation the cysticercus as the source of the evil, we believe that we shall gain good results; for, in the course of time, we will be able to turn our attention to means suitable for the annihilation and destruction of the cucurbitinus, and the egg of the same. For the present we can avail ourselves of a good hygiene, and of such chemical and physical means as may opportunely be at hand, and thus be able to battle against a species of germ which resists a high temperature, alcohol, and even some chemical agents.

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Selection.

Bad Medicine.

By LUNSFORD P. YANDELL, M. D., Professor of Therapeutics and Clinical Medicine in the University of Louisville.

A year since, when dialysed iron was a novelty, I commended it in the NEWS as a most valuable addition to the materia medica. Twelve months of additional experience has confirmed my faith in its excellence. The object of this note is to call attention to the great variety of spurious preparations sold under the head of dialysed iron. In this city I have found nine varieties of so-called dialysed iron. Some of these were manafactured here, but most of them were made elsewhere. Genuine dialysed iron is nearly tasteless. It has the faintest possible saline flavor and a mere suspicion of roughness. Slightly diluted, its taste recalls that of fresh blood. It is not in the least unpleasant, and does not blacken the teeth or tongue. It seldom or never produces any gastric disturbance or headache, and very rarely constipation. It is exceedingly reliable and rapid as a tonic.

The spurious forms of this drug are without the characteristics of taste and efficacy above enumerated, and chemical analysis readily detects their deficiencies. One of the spurious specimens before alluded to was little less unpleasant than the tincture of muriate of iron, another was excessively acid, another was decidedly saline, another was exceedingly astringent, another was sweetish, another was bitter, and another was seemingly only colored water; another more nearly approached correctness, but only a single specimen possessed the peculiarities of the true article.

My attention was first directed to this matter through the failure or misbehavior of the dialysed iron in practice. It is but just to say that the good specimen is from Wyeth & Brother, the original manufacturers of this medicine in America. Wyeth's dialysed iron sells at about a dollar a pound. Other makes may be bought at fifty cents.

TINCTURE OF THE CITRO-MURIATE OF IRON OR TASTELESS TINCTURE OF IRON.

This is one of the very best of ferruginous preparations. It is only second, if indeed it be second, to dialysed iron. It is equally efficacious with the old and justly-esteemed tincture of the muriate, except, perhaps, as a hæmostatic. It should be of a beautiful olive-green color, and should possess a faint, not unpleasant, saline-acid taste, almost neutral. One ounce of this with two of syrup, and a few drops of lemon-oil, makes a most elegant and agreeable tonic, particularly suited to women and children. The dose is from one scruple to one drachm. A teaspoonful of the foregoing mixture is a fair dose, thrice daily.

Unfortunately this medicine is more often found improperly than properly made; and there is no excuse for this, as tincture of citro-muriate of iron is neither difficult to make nor expensive.

ELIXIR OF CALISAYA BARK AND PYROPHOSPHATE OF LIME.

As a combined bitter and ferruginous tonic this has no superior. It is palatable and potent when properly made, but unhappily no article of the materia medica is more various in its preparation.

It should be a pleasant aromatic bitter-sweet, without inkiness of flavor, and of an amber color, and it almost never disagrees with the stomach. It is the exception to the rule to find a first-rate article in the shops.

SULPHATE OF QUINIA.

This drug, the most valuable that we possess, has now become so expensive that it is more important than ever that we look jealously to its purity. For some months there has been no little complaint among physicians that quinia is less reliable in its action and more unpleasant in its effects than formerly. In my own person and in my practice I have of late been painfully impressed by the belief that our quinia is not what it used to be. Excessive dryness of the nose and throat, fulness of the head, vertigo, and nausea are symptoms most rarely produced by quinia; and yet in my own case, and in not a few patients, I have encountered these results of late. These symptoms are common when cinchonia is used, and cincho-quinine and quinidia often produce them. Besides this my experience and that of many of my medical acquaintances is that much larger doses of quinia are now required than formerly, and certainly the malaria of this season is not remarkably intense in its manifestations.

SWEET SPIRIT OF NITER.

When genuine this costs here forty-three to forty-five cents a pound wholesale, and yet our prescriptions are chiefly filled with an article costing only thirty-two, thirty, and even twenty-five cents a pound.

HOFFMAN'S ANODYNE.

About one dollar and ninety cents is the wholesale price of genuine Hoffman's anodyne, but most of our prescriptions are filled with an article which is bought for forty-three to forty-five cents a pound.

It is easy to see how uncertain and unsatisfactory the practice of medicine is rendered by this state of things. The importance of taking prompt and effective steps to remedy this evil can not be over-estimated.—*Louisville Medical News.*

Proceedings of Societies.

PROCEEDINGS OF THE HIGHLAND COUNTY MEDICAL SOCIETY.

Reported by W. W. SHEPHERD, Recording Secretary.

The Highland County Medical Society met at the Council Chamber, in Hillsboro, Thursday, April 11, at 10 o'clock A. M., the President, Dr. Spees, occupying the Chair.

Dr. F. M. Thomas, of Samantha, read an essay upon a "Case of Fracture of the Skull," which was discussed at length by Drs. Rives, Russ, Thomas, Patterson, Spear, Shepherd and others.

Dr. Reed, of Fayetteville, Brown county, presented a case of compound fracture of the skull, in which he had, a few months ago, successfully used the trephine, removing by this means a considerable amount of bone from the right side of the forehead. The patient, who is now entirely well, was examined by the physicians present, and the Doctor was highly complimented for his bold and successful treatment in such a dangerous and difficult case.

The names of Drs. S. J. McNulty, J. K. McNulty and O. C. Hook were reported upon favorably by the Committee on Admissions, after which they were admitted to membership in the Society.

Upon motion, adjourned to dinner, to meet again promptly at 1:30 P. M.

After proceeding to business in the afternoon, Dr. R. C. Russ read an essay upon "Cerebral Thrombosis and Embolism," the subject being one of much obscurity and importance, and was freely discussed by Drs. McNulty, Spees, Trimble, Rives, Russ, Hook, Reed, Shepherd, Wever, Spear, Patterson, Thomas, Whisler and others, and a full and free interchange of opinion and practice had upon the subject of diseases of the brain.

The Society proceeded to elect officers for the ensuing year:

President—Dr. J. L. Wilson, of Greenfield.

Vice-President—Dr. P. H. Wever, of Hillsboro.

Recording Secretary—Dr. C. C. Hixson, of Hillsboro.

Corresponding Secretary—Dr. J. Spear, New Lexington.

Treasurer—Dr. Edward M. Rives, of Hillsboro.

The following committees were chosen for the coming year:

On Admissions—Drs. Whisler, Spear and Rives.

On New Remedies—Drs. McNulty, Spees and Hook.

On Essays—Drs. Trimble, Matthews and Rives.

The following members were chosen to act as a "Board of Censors," also, to examine candidates for permission to practice who have not complied with the State laws, which requires the possession of a diploma or ten years practice: Drs. Shepherd, Russ and Patterson.

Drs. H. Whisler, of Newmarket, and J. M. Spear, of New Lexington, were appointed by the President to prepare and read essays at the next meeting of the Society.

After an address from the retiring President, Dr. S. J. Spees, (who has been President for three years past) the Society adjourned to meet at Hillsboro, Thursday, July 11, 1878, at 10 o'clock A. M.

PROCEEDINGS OF THE CLARKE COUNTY MEDICAL SOCIETY.

Reported by W. E. TOTTEN, Secretary.

The Clarke County Medical Society met Thursday, April 18, President Dr. W. H. Banwell in the Chair. Members present: Drs. Banwell, Bell, Buckingham, Bryant, Carroll, Driscoll, D'Richey, Huffman, E. C. Harris, Kay, Kennedy, A. B. McLaughlin, Marquart, Helson, T. R. Potter, Rice, Reeves, Rodgers, Seys, Senseman, Swayne, Spinning and Totten.

It was ordered that the Secretary furnish credentials to any member wishing to attend the State Medical Society.

Dr. Seys, chairman of the committee on charges against Dr. T. R. Potter, reported. The report was accepted, and the committee discharged.

The charges against Dr. Potter were embodied in the specifications as follows: Specification 1st. In allowing an advertising "cancer and tumor curer" to locate himself in his office, thereby giving him the sanction and support of his professional standing, in violation of section 3d, article 1st, of the code defining the duties of physicians to each other and to the profession at large. Specification 2d. Conduct derogatory to professional character in promoting the use of secret nostrums, or modes of treatment, violating thereby section 4, article 1st, of the code defining the duties of physicians to each other and to the profession at large. Specification 3d. Violation of his duty as a physician (see sec. 4, article 1st, on the duties of the profession to the public) in endorsing by association with, and allowing his name to be used by one who presents the characteristics, by his advertisement, of an "artful empiric and impostor."

Dr. Potter made his defense, and plead guilty to a portion of the charges only, asking the leniency of the Society. In order that the charges and defense might be discussed, it was moved that Dr. Potter be deemed guilty as charged. After considerable discussion each specification was voted upon and sustained. To sustain the charges as a whole, the vote was, yeas, twenty-one, nays none.

A vote on expulsion was taken with the following result: yeas, twenty, nays, one.

By motion the Secretary was ordered to furnish the proceedings of this meeting to at least two Medical Journals.

The Society adjourned, to meet in annual session the second Thursday in May.

W. H. BANWELL, M. D.,
President.

Correspondence.

Cure for Hydrophobia.

WASHINGTON, D. C., MAY 1, 1878.

Editor of the Lancet:—In 1871, while living in Baton Rouge, I was bitten by a dog which presented many appearances of being rabid; in the dilemma which followed I scarcely knew how to proceed, but knowing how fruitless most applications to wounds of this kind had proved, I determined to try something out of the line of such escharotics. I had known of the antiseptic character of the gastric juice, and of the power of the stomach to neutralize and render inert many poisons of an animal or vegetable nature, which, when injected or introduced immediately into the circulation, cause death.

The fact that poisonous wounds may be sucked with impunity, and that many poisons may be in contact with the intestinal living membrane without danger of being absorbed, were enough to convince me that the digestive fluids possessed some other features than those ordinarily ascribed to them. I therefore secured an animal, (a rabbit), and appropriated the contents of its stomach while the process of digestion was going on. This being filtered was thoroughly applied into the teeth marks with a camel hair brush.

While it is not my object to claim the above procedure as a sure preventive against this terrible disease in cases of *rabid bite*. I think my experience sufficient to justify the trial of gastric juice endermically, or by hypodermically in other cases, serpent bites for instance. As to how this fluid acts in the above capacity I have not a word to offer, I should be only too well satisfied to find that the experience of other physicians concurs with my own, and that rabies had been rid of some of its horrors.

Very Respectfully Yours,

ALFRED V. FORGEY, M. D.

205 Pennsylvania Avenue, N. W.

INDIANAPOLIS, IND., MAY 19, 1878.

T. M. STEVENS, M. D.

Dear Doctor: —I noticed in the LANCET AND OBSERVER for May an article by Prof. Dawson, of Cincinnati, on the movo-amobile, or Bavarian plan, for dressing fractures. While in Cincinnati, a few weeks ago, I had the privilege of seeing Dr. D's cases, and was so pleased with the results that I saw in the Good Samaritan Hospital, that I took advantage of what I saw and since have made some dressings in the presence of other surgeons, who accord with me the perfect success of the said dressing. For 10 years I have used the plaster splint, as better, in my judgment, than the plaster bandage, but had not used the *perfection* shown me by Dr. Dawson. Upon examination of his cases, I made several objections, all of which I now take back. His 1st, 2nd, 3rd, etc., expresses the whole of the common sense of the "*plan.*" Two days after I returned from Cincinnati I was called to see a fracture of the tibia from the joint obliquely 2½ inches, (point of lower fragment), above inner malleolus, fibula fractured three inches above the outer malleolus. I put on the "*plan*" and am happy to say that in 4 days he was on a crutch, and now, six weeks after the accident, walks with a cane, with no shortening, no deformity, no pain.

Shortly after this, I had a case of Collie's fracture, complicated with fracture of the ulna. Same dressing was used, and the patient is now well, with a straight arm and all its motions. He still wears the "*plan*" but I think it could be taken off in safety.

Yours,

15 Martindale Block. J. K. BIGELOW, M. D.

Prof. Seely, of this city, will sail for Europe June 15, and expects to return by the 1st of September.

SPRING GROVE ASYLUM. — The board of managers of the Maryland Hospital for the Insane, have recently elected Dr. Richard Gundry, of Columbus, Ohio, superintendent of this asylum. Dr. Gundry is a gentleman of large experience in the management of the insane. He has been superintendent of three insane asylums in Ohio, those of Dayton, Athens, and Columbus, and comes to this State with strong recommendations as a gentleman qualified by education and experience for the responsible position of superintendent.

Abstract.

Current Contributions to Obstetrics, Gynecology and Diseases of Children.

Condensed by EDWARD B. STEVENS, M. D., Lebanon, Ohio.

PNEUMONIA IN CHILDREN.—Dr. W. Squire read a paper on some cases of pneumonia in children. He said it was a comparatively common disease in children; but it was not like bronchitis, a disease of cold weather, but of Spring and Autumn. He spoke of simple lobular pneumonia. He then gave the chief indications, and laid especial stress on a rise in the frequency of the respiration in comparison with the pulse rate. In one case a temperature of 104° Fahr. was reached, yet the child recovered. In another, the respirations mounted to 100 per minute and the pulse to 200. In young children the prognosis largely turned upon the extent of the lung involved. As to its pathology, pneumonia was rather a disease of the blood than of the respiratory tract. Pneumonia and pleurisy were often closely associated. The treatment, etc., consisted chiefly in hygienic measures, as keeping the child quiet in bed. Depressant remedies were not usually well borne. Mercurials should never be used except as occasional aperients; alkaline drinks were good. It was a matter of great moment to secure sleep. It was a disease of high temperature. *Dr. W. H. Day* spoke of pneumonia of the apex. He condemned too frequent physical examinations. *Dr. Cripps Lawrence* said good hygiene was of more importance than medicine.—*Medical Examiner*, (*London*), Nov. 1877.

A DIFFICULT CASE OF OVARIOTOMY.—The following case is reported from the Birmingham Hospital for Women, under the care of Mr. Lawson Tait. B. G., aged thirty-five, was sent to Mr. Tait by Mr. Horsfall, of Wakefield, on account of an ovarian tumor which had been growing for two years, and in the history of the last three months of its progress there were indications of recurrent peritonitis. This appeared to be the probable explanation of the remarkable peculiarity in the case that a note of intestinal resonance could nowhere be obtained. Careful examination made it evident that there was an ovarian tumor, though at first sight, the case really looked like one of ascites, and the absence of the intestinal note made it probable that the stomach and intestines were all behind the tumor.

On March 24th Mr. Tate proceeded to remove the tumor, and found that adhesions existed to all the viscera except the right kidney. The tumor was attached to the liver and spleen, to the anterior surface of the stomach, the whole of the omentum, several coils of small intestine, the left kidney and all over the parietes on every side, as far as the brim of the pelvis. The adhesions were firm and bled freely, and several large vessels had to be tied. The fimbriæ of the left Fallopian tube were glued on to the posterior surface of the tube. The pedicle was quite six inches wide, and along its left side lay an enormous spermatic vein, quite as large as a finger, imbedded in adhesions, and which required the greatest care to isolate it without injury. The pedicle was secured by a clamp, the abdomen was carefully cleaned out, and the wound closed after an operation which occupied quite two hours.

The patient suffered severely from shock, but thanks to the timely administration of some champaign, she rallied. She had no further symptoms which caused anxiety. The clamp came off on the tenth day; she got up on the fifteenth, and went to the country, nineteen days after the operation, in a condition of convalescence.

Another noteworthy feature in the case is, that the tumor consisted of an immense sac, with only a small mass of the original tissue of the ovary included; but this was undergoing cystic distention, so that the tumor was not unilocular. Mr. Lawson Tait has already expressed the belief (Hasting's Essay) that ovarian tumors are never unilocular, but that all unilocular growths are of parovarian origin.—*London Lancet.*

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Subscribe for the "OBSTETRIC GAZETTE."

Reviews and Notices.

Injuries of the Eye and their Medico-Legal aspect. By F. V. Arlt, M. D. Translated by Charles S. Turnbull, M. D. Philadelphia: Claxton, Remsen and Haffelfinger, 1878.

This work supplies a want long felt in the community. The growing tendency of general practitioners to acquaint themselves with the surgery of the eye and the necessity for them to know the possible dangers in cases of injury has created this want. The author from his position as medico-legal expert for the Empire of Austria is perhaps, more than any other person, fixed to handle this subject. The authors division of the injuries into classes according to causation simplifies the study of the subject. The amount of attention paid to the therapeutics gives this an advantage over other books on Injuries of the Eye.

The chapter on simulated injuries and their detection is complete and of great importance.

In the translation the author's meaning has been strictly adhered to, although the translator has taken the privilege of avoiding in some instances, the strict text of the original. The translator has also preferred to use the original version of those articles which having been written in English have been mentioned by V. Arlt.

The book is neatly printed and bound, and should be read by every general practitioner.

Insanity in Ancient and Modern Life; with Chapters on its Prevention. By Daniel Hack Tuke, M. D., F. R. C. P. London: Macmillan & Co. For sale by Robert Clark & Co. Price $1.75.

No department in the domain of medicine is attracting so much attention from the ablest men in the profession, as that pertaining to mental and nervous diseases. In fact, this interest is not confined to members of the medical profession, but legislators, lawyers, clergymen, and cultivators of science in other fields are manifesting a deep interest in questions relative to insanity.

The author is well-known through his long connection with insane asylums, their management and as a writer of recognized ability. Part I. of this little volumne is devoted to an account of the prevalence and causes of insanity among the nations of Antiquity, in pre-historic times, and among the Jews, Egyptians, Romans and Greeks. In which he clearly demonstrates that the potent causes of insanity, such as drunkenness, defective nourishment, poverty and immorality existed, and produced similar mental effects to those observed at the present time. The book is full of interesting statements, systematically arranged, and is a valuable contribution to medical literature.

Transactions of the New York Pathological Society. Vol. II. Edited by John C. Peters, M. D., President of the Medical Society of the County of New York. New York: William Wood & Co., 1877. For sale by Robert Clarke & Co.

This volume of Transactions is based on the Proceedings of the year 1875, and largely supplemented from the records of 1844 to 1877. The work is made up entirely of reports of cases of disease or injury to the abdominal organs. Many of the cases being unique and exceedingly interesting. The editor deserves great credit for the systematic manner in which he has tabulated many of the reports on special diseases and injuries. The series of reports of intestinal affections are especially valuable.

The Science and Art of Surgery: Being a Treatise on Surgical Injuries, Diseases and Operations. By John Eric Erichsen, F. R. S., F. R. C. S., Surgeon Extraordinary to Her Majesty, the Queen, etc., etc. Revised by the author from the Seventh and Enlarged English Edition. Illustrated with eight hundred and sixty-two engravings. 2 Vols. Philadelphia: Henry C. Lea. For sale by Robert Clarke & Co. Price $10.50.

The name and fame of the distinguished author of this really great work on Surgery is familiar to all practitioners of Surgery in the United States, and it is with special pride and gratification that we notice in the preface "these volumes are dedicated to the Surgical Profession of the United States of America, in testimony of the esteem which I entertain for that large and enlightened body of practitioners, and of the cordial friendship that exists between me and many of its members," A work that has been adopted as a text book in all Medical Colleges, and like this has passed through seven large editions, scarcely needs further comment at the hands of the reviewer than to state that all the late really valuable advances made in the study of surgical diseases and their treatment has been fully stated and incorporated in the work.

We observe that the author, after giving a very excellent description of the Antiseptic Method of treating wounds, as practiced by Mr. Lister, commends its use, but at the same time says, " it is not reasonable or just to ascribe a diminution of the amount of Septic disease in a hospital in which the "Antiseptic Method" is employed, to that alone, and to the exclusion of all other causes. Either hygiene is of no value in surgical cases, or some, and probably no inconsiderable share in the improved results, must in justice be assigned to the generally ameliorated sanitary conditions. The only comparison that can justly or scientifically be instituted, is between one set of patients treated anti-septically, with another of a similar kind, subjected cotemporaneously to other methods of treatment. And for this comparison to have any practical value, it must be continued for a sufficiently lengthened period to eliminate all sources of error from accidental causes. It is manifestly unscientific to compare the results of modern with those of older methods of surgical practice, even in the same institutions, where the attendant conditions, independent of mere treatments are dissimilar; and it is equally incorrect and unjust to refer all improvements in results to one only of the many improved conditions to which the patient is now subjected."

In this view of the value of the antiseptic method, the author undoubtedly echoes the opinions of the principal surgeons of England and America. Recognizing the value of this great therapeutic agent, he also does not forget the other factors that have been called upon to do duty in the management of open wounds. In fact, all through the work the value of good hygienic conditions and sanitary surroundings are set forth as absolutely essential to the treatment of his cases.

The work will long held its place as a text book for students, and a reference book for practitioners.

Brain. This is the singular title of a New Journal of Neurology Published by Macmillan & Co., and edited by J. C. Bucknill,

M. D., F. R. C. P., F. R. S.; J. Crichton-Browne, M. D., F. R. S. E.; D. Ferrier, M. D., F. R. C. P., F. R. S.; and J. Hughlings Jackson, M. D., F. R. C. P.

The first number is on our table, and is just what any reader of the names of the publishers and editors would expect, viz.: A nearly perfect exposition of the knowledge of the most advanced investigators in all that relates to the Anatomy, Physiology, Pathology, and Therapeutics of the Nervous System.

Diseases of the Nervous System; Their prevalence and pathology. By Julius Althaus, M. D., M. R. C. P. London, New York: G. P. Putnam's Sons. For sale by Robert Clarke & Co. Price $3.50.

The author of this monograph is recognized as one of the most conscientious investigators in the special pathology of the several diseases of the nervous centres. In this work we find recorded not only the result of his own labors but that of others, giving the reader a compend of the knowledge of the most advanced investigators in this field.

Congenital Occlusion and Dilations of Lymph Channels. By Samual C. Busey, M. D., Professor of the Theory and Practice of Medicine in the Medical Department of the University of Georgetown, D. C. etc., etc. New York: William Wood & Co. For sale by Robert Clark & Co.

This volume consists of a series of eighty-eight cases of this infrequent disease, two of the cases occurring in the author's practice, the other cases being gathered from a most extensive research through the great National storehouse of medical literature, the library of the Surgeon-General's Office. Many of the cases are finely illustrated, which gives the reader a much better idea of the appearance of persons affected with the disease than is possible from simply reading the text. The first case reported is one that came under the author's observation, and is one of the most interesting in the whole series. As the disease was first seen when the patient was only four days old, and involved the whole right lower extremity. Unfortunately, the patient was taken with entero-colitis at the age of one year, and succumbed to the disease.

The work is unique, as it embraces everything of value that has been written on the subject.

Prescription Writing. Designed for the Use of Medical Students who have never studied Latin. By Frederick Henry Gerrish, M. D., Professor of Materia Medica and Therapeutics, in the Medical School of Maine, etc. Portland, Me.: Loring, Short & Harmon, P. 51.

If any one doubts the necessity of a book on this subject, let him at once ask the nearest apothecary how many prescriptions are correctly written, out of the whole number received. The enquirer will be astonished to find so many incorrectly and badly written, and will at the same time wonder that more fatal mistakes are not made by the pharmacist. The act of writing a simple prescription cannot be performed with too great care, and should always be revised after it is written. We find in this little volume some most admirable rules to be observed in writing prescriptions, the observance of which will lessen the possibility of an error being committed. The book is not only valuable for students, but should be thoroughly studied by a respectable number of practitioners.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. Von Ziemssen, Professor of Clinical Medicine in Munich, Bavaria. Vol. XIV. Diseases of the Nervous System, and Disturbances of Speech. By Prof. A. Eulenberg, of Greifswald; Prof. H. Nothnagel, of Jena; Prof. Von Ziemssen, of Munich; Prof. F. Jolly, of Strassburg; Prof. A. Kussmaul, of Straussburg; and Dr. J. Bauer, of Munich. Albert H. Buck, M. D., New York, Editor of American Edition. New York: William Wood & Co. For sale by Robert Clarke & Co. Price $5.00.

The first part of this volume is devoted to a discussion of the Vaso-Motor Neuroses, by Prof. Eulenburg. In which he first takes up the the subject of hemicrania, an affection that is characterized by spontaneous attacks or fits of pain in the head, limited to one side, though often not distinctly bounded. The author regards the female sex as very much more predisposed to the disease than the male. That youth is decidedly predisposed to its development, and is frequently hereditary. In regard to treatment, the usual remedies that are given empirically, are mentioned, without designating anything new or that is not known to every intelligent practitioner.

The same author next takes up the more grave affection, known as Angina Pectoris. The characteristic symptoms of which are designated as: Pain in the region of the heart, occurring in paroxysms, which usuallly radiates over the left side of the thorax and the left arm, more rarely over both sides and arms; the pain is associated with a peculiar sensation of anxiety and constriction, and often also with other motor, vaso-motor, and sensative disturbances.

Stenocardia is another name for these attacks. The disease is classed with the Visceral Neuralgias. The author refers the pain with which the attack begins to definite disturbances of the innervation of the heart, consisting in an abnormal increase or diminution of the activity of the nerves forming the cardiac plexus. In the treatment of the disease, nitrite of amyl is recommended, on account of its power to relieve arterial tension.

Prof. Nothnagel contributes a very excellent article on Epelipsy and Eclampsia. The volume as a whole is one of the best in this most excellent series.

Lectures on Clinical Medicine; Delivered in the Royal and Western Infirmaries of Glasgow. By Dr. M'Call Anderson, Professor of Clinical Medicine in the University of Glasgow. With Illustrations. London: Macmillan & Co. For sale by Robert Clarke & Co. Price $3.

The author introduces his work by a lecture in which he narrates the therapeutic uses of some of the most potent remedies in the Materia Medica. As the Laryngoscope as a means of investigating and treating the functional and organic affections of the larynx; the Ophthalmoscope not only in gaining a knowledge of the healthy and morbid appearances of the deeper structures of the eye, but in its use in throwing light upon the nature of obscure affections of the brain, and of distant organs, such as the kidneys; the use and application of the sphygmograph to determine the state of arterial tension; the value of the thermometer for making repeated observations of the temperature of the body, and with a view to regulating the temperature of the sick room; the use of the clinical thermometer leads to the systematic adoption of special remedies in cases of hyperpyrexia, as the application of cold baths, iced cloths, cold douche, etc. The value of bromide of potassium not only in epilepsy, but he regards it as a specific when given in appropriate doses for the arresting of the paroxysms of laryngismus stridulus, and also as the most effective remedy for the treatment of urticaria perstans, its value in sleeplessness is well known. The great advantages offered in the treatment of accumulations of fluids in inward parts by the use of the aspirator. The administration of medicines by subcutaneous injection, and its advantages. The use of electricity as a means of combating disease is very happily illustrated. The administration of large doses of iodide of potassium in certain forms of disease. But the most striking of all the improvements in the treatment of the sick of late years, is found in the increased attention given to the subject of nursing.

A lecture is devoted to cases illustrative of pain as a symptom of disease. Another to cases illustrative of gastric and cerebral vomiting, and the distinctive features of each. The author is exceedingly clear in his expressions, and in seventeen lectures treats of the most difficult class of cases that are likely to fall to the lot of the general practitioner to treat. The publishers have issued the work in a style highly creditable to the typographical art, the engravings are especially fine. A large sized chromo lithograph plate illustrates a case of aneurism of the arch of the aorta (full size) involving the innominate artery solidified after Galvanopuncture.

A Compend of Diagnosis in Pathological Anatomy; with Directions for making Post Mortem Examinations. By Dr. Johannes Orth, First Assistant in Anatomy, at the Pathological Institute in Berlin. Translated by Frederick Cheever Shattuck, M. D., and George Kraus Sabine, M. D. Revised by Reginald Heber Fitz, M. D., with numerous additions from MSS., prepared by the author. Sole authorized English edition. New York: Hurd & Houghton. For sale by Robert Clarke & Co. Price $3.50.

In scarcely any department in medicine has there been such material advancement made within the last decade as has taken place in pathology. In fact, this department has been almost entirely created within that time. This volume worthily represents the results attained by the labor of one of the most distinguished investigators in pathological science, the author having been engaged for several years in making studies and in giving instruction in the famous Pathological Institute at Berlin. Consequently his opportunities have been all that he could possibly desire. The work is most admirably adapted to the use of students in the dissecting room, and to the physician or surgeon in making an autopsy. The publishers have issued the work in handsome style.

Book of the Cincinnati Organ. Robert Clarke & Co., of Cincinnati, has just published a book upon the great Cincinnati Organ, about which so much has been said. The book has official sanction, and is edited by George Ward Nichols, who is president of the association which built the organ. This excellent book not only describes the mechanism of the musical part of the organ, with the decoration of the screen, but it fills a place in the literature of the organ, which, for some unexplained reason, has always been vacant. No one has ever before thought it necessary to tell us what an organ really is—what is meant by "stops," "wind chests," "swell boxes," "pneumatic action," "trackers," and all the other technical terms. These are clearly explained in this book, so that any one may understand them, and the explanation has especial value, because it describes the most complete, and one of the largest organs in the world. With the above, the book has a brief description of the new Music Hall, and it is charmingly and profusely illustrated with engravings of the splendid carvings of the screen. The organ book will be remitted by the publishers, by mail, on receipt of price, 25 cents.

The Golden Shore. Published by F. W. Helmick, Music and Book Publisher, 136 West Fourth Street, Cincinnati, Ohio. Price 30 cents per copy or $25.00 per hundred, in currency or postage stamps.

We have just received, from the publisher, a copy of a New Song Book, for Sabbath Schools, called the Golden Shore, by J. F. Kinsey. It promises to become one of the most popular singing books in America. It should be found in every family in the land.

There is a demand for something new: To many hearts, music is a rich treat, a real feast. We can confidently say that the Golden Shore contains a collection of songs for Home use or Sunday School that any body might be proud of. Every song in it has been selected with care, and the beauty is the work is entirely new. There is little or nothing at all taken from other books, therefore, making it a work entirely different from any Sunday

School Book published in America. It will certainly never fail to meet the growing desire among Sunday School Superintendants, and workers throughout the country. The music is brilliant, attractive, and at the same time devotional. The words have also been selected with the greatest care, avoiding the aimless sensation and senseless rhyme.

Transactions Kansas Medical Society, 1877. A neat volume of over 70 pages.

The Opening Address of H. S. Roberts, of Manhattan, is short and worth perusal. The only two papers that merit mention are those of W. L. Schenck, of Osage City, on "Septic Diseases," and of J. H. Van Eman, of Toganoxie, on "Typho-Malarial Fever." The latter paper is quite elaborate, and is especially deserving of commendation. We congratulate Kansas physicians on the increased interest they have latterly evinced in the proceedings of their "State Society." T. C. M.

ILLINOIS STATE BOARD OF HEALTH.

Chicago, April 10, 1878.

At a meeting of the Board, held at Cairo, November 15, 1878, the following resolutions were unanimously adopted:

Resolved, That on and after July 1, 1878, the Board will not consider any Medical School in good standing which holds two graduating courses in one year.

Resolved, That on and after July 1, 1878, the Board will not recognize the Diplomas of any Medical School which does not require of its candidates for graduation the actual attendance upon at least two full courses of lectures, with an interval of six months or more.

R. Ludlam, M. D., Chicago.
A. L. Clark, M. D., Elgin.
W. M. Chambers, M. D., Charleston.
J. M. Gregory, LL. D., Champion.
Horace Wardner, M. D., Cairo.
Newton Bateman, LL. D., Galesburg.
John H. Rauch, M. D., Chicago,
President and Acting Secretary.

Obituary.

DR. M. H. KEEVER.

Action of Lebanon Medical Society on the death of Dr. M. H. Keever, of Ridgeville: At the regular meeting of the Society in Lebanon, May, 21st, on motion a committee was appointed to report upon the death of Dr. Keever, which presented the following:

We have heard of the death of our professional brother Moses Harlan Keever, M. D., of this county, and take this occasion of our first meeting as a society, to formally express the sorrow we have each felt individually, in the loss of an excellent man, and an accomplished physician.

Dr. Keever was a graduate of the Medical College of Ohio about the year 1834. Eberle, Mitchell, Staughton, and Gross were members of the Faculty. Dr. Lewis Drake, formerly of this place, Drs. Dodge, and Fore, of Cincinnati, C. C. Hildredth, of Zanesville, and other well known physicians of Central and Southern Ohio were his classmates. His previous office reading had been with Dr. Joshua Stevens, then of Monroe.

Immediately after graduation, Dr. Keever commenced practice at Ridgeville where he continued until his death—a period of enviable and successful practice of nearly half a century.

With advancing years, our deceased colleague had not mingled with medical societies, but he held a prominent and active part in professional work, until the last call came: He died suddenly—but died emphatically "with the harness on."

Resolved, That the Lebanon Medical Society, recognize in the life and death of Dr. Moses H. Keever, a completed life of professional work: industrious, honorable, capable. He leaves behind a worthy name, as a goodly inheritance to his children, rather than an accumulation of ill gotten gains. His example of whatever was good we will strive to cherish and emulate.

Committee, { E. B. STEVENS, M. D.
J. T. COWDEN, M. D.
B. F. LUDLAM, M. D.

A FEW OF THE MOST VALUABLE FORMULAS

— OF —

Sugar-Coated Pills,

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WM. S. MERRELL & CO. Cincinnati.

In every instance the U. S. P. and other standard Formulas are strictly followed. *No article is omitted or modified* on account of increased cost; and such excipients only are employed as will *ensure ready solubility* and prompt action.

Special attention given to the manufacture of Pills from Private Formulas, in quantities not less than 3,000 at one time.

AMMONIA CARBAZOTATE, ¼. ⅛ and 1-16 gr.		50
ANTI-CONSTIPATION (Houser. Dose, 1 to 2.	Ex. Belladonna, ¼ gr. Ex. Nux Vom., ½ gr. Ex. Coloc Co., 2 gr. Podophyllin, 1-10 gr.	75
APERIENT, Dose, 1 to 2.	Ex. Nux Vom., 1 3 gr. Ex. Hyoscyami. ½ gr. Ex. Coloc. Comp., 2 gr.	85
CATHART: Comp., U. S. P.—Improved; and Wm. S. Merrell & Co.'s formula.		60
CINCHONIDIA SULPH.	1 gr	60
	2 grs	1 10
	3 grs	1 60
EMMENAGOGUE. Dose, 1 to 3.	Ergotine, 1 gr. Ex Helleb. Nig. 1 gr. Aloes Soc., 1 gr. Ferri Sul. 1 gr. Ol. Sabinæ, ½ gtt.	1 40
HEPATIC, (Wm. S. Merrell & Co.'s) Podophyllin and Iridin, each ¼ gr.; Leptandrin ½ gr.; Ex. Nux. Vom. 1-16 gr.; Pow. Capsicum ½ gr		75
HYDRASTIA SULPH. Comp. Dose, - 1	LABAREE'S FORMULA. Hydrastia Sulph., ¼ gr Sanguinarina Nit., 1 16 gr. Cinchonidia Sulph., 2 gr.	2 00
IODOFORM AND IRON. Dose 1 to 2.	Iodoform, 1 gr. Iron, (Quevennes) ¼ gr.	2 50
IRIDIN, (Oleo Resin) 1 gr., dose, 1 to 3		60

From the purple variety of the Blue Flag; employed in all diseases where there is bad blood and imperfect nutrition. An important remedy in the treatment of secondary syphilis.

NEURALGIC. Dose, 1 to 2.	Quinia Sulph., 2 grs. Morphia Sulph., 1 20 gr. Strychnia. 1-30 gr. Acid Arsen. 1-20 gr. Ext. Aconit. ½ gr.	3 00
PHOSPHOROUS, 1-50 gr., 1-100 gr		1 00
PHOSPHOROUS COMP.	Phosphorous, 1-100 gr. Ex. Nux. Vom. ¼ gr.	2 00
PHOSPHOROUS & NUX VOMICA.	Phosphorous, 1-50 gr. Ex. Nux. Vom. ⅛ gr.	2 00
PHOSPHOROUS, IRON AND NUX VOMICA.	Phosphorous, 1-100 gr. Fer. Car. (Vallet's) 1 gr. Ex. Nux. Vom., ¼ gr.	2 00
PHOSPHOROUS, IRON AND QUINIA.	Phosphorous, 1-100 gr. Fer. Car. (Vallet's) 1 gr. Quinia Sulph., 1 gr.	2 90
PHOSPHOROUS, IRON, NUX VOM. & QUINIA.	Phosphorous, 1-100 gr. Fer. Car. (Vallet's) 1 gr. Ex. Nux Vom., ⅛ gr. Quinia Sulph., 1 gr.	2 90
PODOPHYLLIN & HYDRAST. Scudder's formula.	Podophyllin, 1-20 gr. Hydras. Sulph., ¼ gr.	75
PHOSPH. ZINC & EX. NUX VOM.	Phosphide Zin. 1-10 gr. Ex. Nux Vom., ¼ gr.	1 00
QUINIA SULPH., 1, 2 and 3 grs.		
QUINIA COMP. Dose, 1 to 2.	Quinia Sulph., 1 gr. Fer. Car. (Vallet's) 2 gr. Acid Arsen., 1-60 gr.	2 75
QUINIA, IRON & STRYCHNIA. Dose, 1 to 2.	Quinia Phos., 1 gr. Ferri " 1 gr. Strychnia " 1-60 gr.	2 75
QUIN. IODOF: IRON. Dose, 1 to 2.	Iodoform, 1 gr. Fer. Carb. (Vallet's) 2 grs. Quinia Sulph., ½ gr.	3 00
RHEI COMP. U. S. P. Dose, 2 to 4.	Pulv. Rhei, 2 grs. " Aloes, 1½ grs. " Myrrh, 1 gr. Ol. Menth. Pip.,	75
SALICYLIC ACID, 2½ grains		75
do do 5 grains		1 25
SANDALWOOD COMP. 3 gr.	Sandalwood, 1 gr. Sol. Bals. Cop., 1 gr Ol. Resin Cubebs, 1 gr.	1 25
SVAPNIA, 1 gr. and ½ gr.		
SEDATIVE.	Aconitin, Digitalin, ea 1-50 gr. Gelseminin, 1 30 gr. Sulph. Veratria, 1-25 gr. Ext. Henbane, 1 4 gr.	95
STRYCHNIA COMP.	Strychnia, 1-100 gr. Phosphorus, 1-100 gr. Ex. Cannab. Ind., 1 16 gr. Ginseng, 1 gr. Carb. Iron, 1 gr.	95
SYPHILLITIC.	Iodide Potassium, 2 grs. Corrosive Subli., 1-50 gr. Stillingin, ½ gr.	95
PODOPHYL. Comp. Cathartic, Tonic. Dose, 1 to 2.	Podophyllin, ½ gr. Ex. Hyoscy, ⅛ gr. " Nux Vom. 1-16 gr.	75

N. B.—When you send an order to a Druggist for any of our Preparations, please make it clearly understood that you want WM. S. MERRELL & CO.'s.

Sanitary Reports

FROM THE CINCINNATI HEALTH OFFICE.

Prepared by T. C. MINOR, M. D., Health Officer.

Condensed Death List for April, Classified.

Class 1.	Order.		Total.
Zymotic.	1. Miasmatic	73	
	2. Enthetic	2	
	3. Dietic		75
Constitutional.	1. Diathetic	10	
	2. Tubercular	66	76
Local.	1. Nervous System	72	
	2. Circulatory System	16	
	3. Respiratory "	68	
	4. Digestive "	21	
	5. Urinary "	7	
	6. Generative "		
	7. Locomotory "	3	
	8. Integumentary "		187
Developmental.	1. Children	18	
	2. Women	2	
	3. Old Age	4	
	4. Nutrition	8	32
Violence.	1. Accident	12	
	2. Homicide		
	3. Suicide	7	19
	Total.		389
	Still Born.		32

DEATHS BY CAUSES.

Accident	4	Asthma	4
Burns	2	Artificial Food	1
Drowning	2	Bowels, Congestion of	2
Falls	2	Brain, Concussion of	2
Anæmia	1	Brain, Congestion of	6
Angina Pectoris	1	Brain, Inflammation of	8
Apoplexy	9	Brain, Softening of	1

DEATHS BY CAUSES.—Continued.

Bronchitis	17	Lung, Congestion of	2
Cachexia	1	" Inflammation of	2
Cancer of Breast	2	Puerperal Mania	1
" Stomach	1	Marasmus	1
" Uterus	2	Measles	3
Consumption	62	Meningitis	10
Convulsions	24	Meningitis Cerebro Spinal	4
Croup	6	Old Age	4
Cystitis	1	Pharyngitis	1
Debility	4	Paralysis	8
Delirium Tremens	2	Parturition	1
Diarrhœa, Acute	2	Pericarditis	5
Diarrhœa, Chronic	1	Peritonitis	5
Diphtheria	13	Puerperal Peritontis	2
Dropsy	4	Pleurisy	1
Dysentery	1	Poisoning	1
Enteritis	1	Pneumonia	42
Erysipelas	2	Premature Birth	3
Puerperal Fever	4	Pyæmia	1
Scarlet Fever	18	Scrofula	1
Typhoid Fever	11	Spinal Disease	2
Gastritis	3	Operation	1
Heart Disease	4	Suicide	7
Organic Heart Disease	1	Synovitis	1
Valvular "	5	Syphilis	2
Hemorrhage Uterine	1	Tabes Mesenterica	1
Hydrocephalus	2	Tonsillitis	1
Inanition	10	Teething	3
Intemperance	4	Ulcer Stomach	1
Kidney Disease	2	" Bowels	1
Bright's "	4	Small Pox	1
Liver, Cirrhosis of	5	Whooping Cough	2
" Congestion of	1		—
" Inflammation of	2	Total,	389

LOCALITY.

1st	Ward,	28	15th	Ward,	12
2d	"	23	16th	"	18
3d	"	17	17th	"	10
4th	"	17	18th	"	16
5th	"	10	19th	"	12
6th	"	8	20th	"	11
7th	"	16	21st	"	15
8th	"	12	22d	"	14
9th	"	10	23d	"	14
10th	"	17	24th	"	15
11th	"	13	25th	"	15
12th	"	14	Public Institutions		28
13th	"	11			—
14th	"	13	Total,		389

AGE.

Under 1 year	85	50 and under 60 years,	27
1 and under 2 years,	25	60 " 70 "	28
2 " 5 "	34	70 " 80 "	15
5 " 10 "	17	80 " 90 "	8
10 " 15 "	7	90 " 100 "	2
15 " 20 "	13	Over " "	1
20 " 30 "	44		
30 " 40 "	42	Total,	389
40 " 50 "	41		

SEX.

Males	204
Females	185
Total,	389

COLOR.

Whites	364
Blacks	25
Total,	389

NATIVITIES.

Cincinnati	228	Canada	3
United States	59	Other Foreign	4
Germany	47	Not Stated	3
Ireland	34		
England	11	Total,	389

SOCIAL STATE.

Married	130	Not Stated	1
Single	238		
Widowers	7	Total,	389
Widows	13		

REMARKS.

As compared with the previous month, (March), there were fewer deaths from Scarlatina, and an increase in the number from Diphtheria and Puerperal Fever. In the early part of January Spinal Meningitis appeared in the Western portion of the city; in the months of February and March the disease made its appearance in the 10th and 13th wards, since which time there has been a slight epidemic tendency. As compared with the number of cases, the mortality has been slight. The epidemic of measles that appeared last Winter is now rapidly declining, but few deaths from this cause being reported.

The average daily mortality during month, as compared with same month four years past, was as follows:

1874	Daily	Average,	12.77
1875	"	"	12.34
1876	"	"	15.74
1877	"	"	11.30
1878	"	"	12.97

◆

THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

Vol. XXI.—JULY, 1878.—No. 7.

Original Communications.

Article I.—Tapping of Ovarian Cysts.

Read before the Cincinnati Obstetrical Society,

By C. D. PALMER, M. D., Prof. of Gynæcology in the Medical College of Ohio.

The method for tapping of ovarian cysts, is one of the oldest of operations. Simple in its execution, having for its object a speedy and decided relief of the symptoms of abdominal distension, together with clear and reliable information furnished by an examination of the physical and chemical characters of the fluid drawn off, it is an operation which has been practiced the world over, and has been regarded by many as devoid of danger—in fact, as safe, as it is simple and easy of execution. In this short paper I simply desire to inquire: What are the results which, from our present standpoint, may be expected from this operation? To what extent, do these warrant a continuance of the same? When? and in what class of cases? Unfortunately, the greatest diversity of opinion is found in the various authorities at hand. Every *possible shade* of expression can be obtained.

Boinet * recommended tapping in all cases, and thought there was nothing grave in it.

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* PEASLEE—page 173.

Kiwisch[*] that in simple and colloid cysts, attempts should always be made at tapping.

Atlee regards tapping as "indispensable as a means of diagnosis, equally so as an adjuvant in effecting a cure." Speaking of the opinions promulgated by Lee and Meigs, on the dangers of tapping, he says, they "have not only tended to augment suffering, curtail life, but also to interfere with the progress of science. He characterizes these "as most absurd, unfounded, and most startling."

He says: "that for tapping an ovarian cyst a very large trocar should be employed."

Spencer Wells thinks that "under the present simplified method of tapping it is doubtful if the mortality is as much as one to sixty (Simpson). It is less in his experience." He often taps.

McDowell said that "relief was only temporary and attended with no inconsiderable danger."

Simpson speaks of tapping as "by no means free from danger, more especially when performed the first time, may sometimes be fatal."

Nussbaum[†] regards tapping as too dangerous to be resorted to for diagnosis.

Thomas speaks of tapping as a valuable diagnostic and palliative measure and practiced with proper precaution (aspiration), its dangers are greatly diminished.

Peaslee says: "tapping a monocyst is not a dangerous operation, but tapping of a polycyst is a very dangerous operation and should never be performed except for diagnostic purposes."

Spiegelberg[‡] (Breslau) has great faith in "the diagnostic value of puncture in ovarian tumors, and therefore ought never to be omitted before a radical operation is undertaken, however, acknowledging that it is not so free from danger as some suppose."

Hegar[§] "deprecates exploration puncture in all cases where positive diagnosis can be made in any other manner. Such cases are many."

Stilling[||] says: "No surgeon should ever puncture an ovarian cyst. Tapping is a crime. Never tap."

Storer:[¶] "Never tap, if there is the slightest chance of the tumor being ovarian."

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[*] KIWISCH—Exterpation of the ovaries, 1850.

[†] PEASLEE—page 173.

[‡] American Obstet. Journal, Vol. 3, p. 70—71.

[§] Am. Obstetrical Journal, Vol. 3, p. 172

[||] Extra peritoneal method of ovariotomy, p. 161.

[¶] GOLDEN, rules for Ovarian Tumors. Boston Gynæcolog. Journal, Vol. i, p. 338.

Only two of the above twelve authority never tap; the remaining ten tap with varying frequency for diagnosis or treatment, according to the size, nature of tumor, and obscurity of diagnosis. Most regard it as attended with more or less danger.

But our inquiries can be more satisfactorily answered by reviewing the objects sought for in the operation, together with the results which may follow.

1st. Diagnosis of the tumor; its nature (solid, fluid), character of the fluid, number of cysts, attachments, etc. That tapping is an important means for the determination of these points is not disputed. The appearance of the fluid (if any) drawn off, its color, consistency, specific gravity, chemical reaction, microscopical appearance, and finally, the conduct of the remaining cysts, are great helps, and pave the way for clear and decided action. There are certain instances in which the more careful operator will seriously hesitate before proceeding to open the abdomen without that surety which tapping gives.

It would appear at times to be a necessary procedure in diagnosis, for whatever other methods of examination (save exploratory section) are instituted, doubts will remain.

Fortunately, however, with increasing experience and improved methods of exploration, we are warranted in saying, that the number of such cases is diminishing and will continue to diminish.

2d. *Palliation.* The immediate effect of emptying one or more cysts of an ovarian tumor which by pressure has been creating great discomfort and interference with function of all surrounding organs is, often very gratifying. The palliation continues for a longer or shorter time, according to the rapidity of refilling. Experience teaches that the good effects are, in the vast majority of instances, of short duration and by no means satisfactory.

3rd. *Cure.* A certain few cysts of the ovary and the parovarian region, are absolutely, cured by tapping. There is too much testimony, from too many reliable sources, to admit of a single doubt concerning this. The curative effect, the result of an obliteration of the sac, or atrophy of the same, is most likely to follow from tapping in (a) par-ovarian cysts; next, in (b) *unilocular* cysts of the ovary proper; next in (c) paucilocular cysts; last in (d) multilocular cyst. In the first, cure perhaps occurs as a rule; in the second, and third varieties, it by far more frequently fails, and in the last, failure is a certain result. In my own experience, a cure seems practically to have resulted from tapping in one case of paucilocular cyst, which had reached the third stage of development. The sac which was emptied was the largest, has not refilled since (tapping Sept. 16, 1875). Almost complete atrophy of the remaining tumor rapidly followed the operation.

Boinet who practiced tapping in all cases for the diagnosis of ovarian cysts, seemed to have most excellent success from the injections of iodine. Even in the multilocular variety, cyst after cyst he injected. Further experience with his cases, proved that the good results in many instances, were not permanent. Besides, the per centum of death has been not inconsiderable, approaching if not equal to that of ovariotomy itself, when indiscriminately practiced in all cases. Restricted however, to single cysts, with clear, serous fluid, especially if previously tapped, as did *Simpson* and more recent operators, it is a procedure which may be employed with considerable degree of safety and prospect of ultimate success, amounting, according to *Peaslee*, to one third to one half of all the cases. In polycystic tumors, it is totally unadapted, never cures, is very dangerous for reasons which will appear. If there is *any prospect whatever* from ovariotomy itself, tapping followed by iodine injection cannot be too severely censured.

So much then for what may be gained, now what may be lost by the procedure; in other words, what are the dangers of tapping? Reference is had to the abdominal method.

1. *Hæmorrhage.* No one contends that this particular risk is considerable. Still an unfortunate result is possible. Whatever trocar is employed, and of course the larger the trocar the greater the risk, there is a possibility that a blood-vessel of the abdominal wall, bands of intermediate adhesions, omentum, intestine or cyst wall, may be injured, and serious hæmorrhage follow. Such accidents have not only happened, but proved fatal. Peaslee lost a patient 18 hours following tapping, from hæmorrhage of a wounded omental vessel. *Spencer Wells* mentions a case in the practice of an acquaintance, death following in a few hours. *Kiwisch* records two cases. Even if the actual loss of blood is insignificant, its final disposal, and the risk of septic peritonitis, from its presence in the peritoneal cavity, are matters of serious consequence.

2d. *Shock.* This is another possibility, most likely to occur in nervous and exhausted patients.

3rd. *Inflammation.* (a) of the peritoneum. Admitted on all hands to be the greatest danger, it is due in part to the direct injury of the membrane in puncturing; but of course, this does not satisfactorily explain a tithe of these cases of peritonitis. Tapping of an ovarian cyst is a very different matter from tapping for ascites. In the latter, we pass directly into the cavity which is to be emptied, and which contains an innocuous fluid. The contents of an ovarian cyst under the most careful management, is exceedingly liable to escape into the peritoneal cavity. While the peritoneum bears with impunity, handling, cutting, etc., it is very intolerant of foreign materials. Just in the proportion, as is the fluid escaping unlike the natural secretion of the peritoneal cavity, in that proportion, is it liable to excite irritation and inflammation. The presence of the light colored, the slightly or non-albuminous fluid of a cyst of broad ligament, is a source of almost no danger; while on the opposite hand, the thick, dark, and highly albuminous material, in a state of colloid degeneration of a polycyst, is a sure fuel for disturbance and inflammation.

(b). *Inflammation of the sac.* This is the result of trauma, the rapid evacuation of the sac contents, or the entrance of air within its cavity, and occurs more frequently than is supposed. The formation of adhesions over the tumor from puncturing, does not appear to increase the mortality of ovariotomy (Spencer Wells). But extensive remains of adhesions from a well pronounced peritonitis, certainly complicates the operation, and must, other things being equal, add to the gravity of the prognosis.

4th. *Septicœmia.* From the entrance of air into the peritoneal cavity, or that of the sac, decomposition takes place, suppuration is set up, and absorption of the septic fluids. Septicæmia is very often associated with peritonitis. In the order of frequency, it ranks second among the immediate dangers.

5th. *Rapid refilling* of the *cyst*, and *consequent drain* of the *general system.* Patients are usually more or less anæmic, emaciated and exhausted, when tapping is first practiced. If the cyst now rapidly refills, and this it may do although a unilocular, even to a surprising degree, amounting to several gallons of fluid within a few weeks to a few days, the drain on the general system is enormous, and is of itself, a source of the greastest danger.

A fatal issue may follow by the way of a hectic, phthisis or amyloid degeneration of the internal organs. Experience has time and time again proven, that the interval between a number of tappings, becomes shorter and shorter. Refilling occurs with increasing rapidity and facility. Not a few cases in fair condition for ovariotomy, prior to or soon after a first tapping, have been permitted to become weaker and more exhausted under the increasing drain, until a radical operation offers only a forlorn hope.

Tapping by the vagina is open to all of these dangers, though to a different degree. In most instances, it is more objectionable. There is increased danger of wounding of the vessels of the lower tumor, or surrounding organs, entrance of air into the sac, decomposition of the contents, and inflammation of walls of the cyst. But there is undoubtedly, much less danger of peritonitis from entrance of the irritating contents of the tumor into peritoneal cavity, as well as septicæmia, by this method.

In a certain few instances, when the tumor is not large, and is adherent to the pelvic viscera, and when the ascitic accumulation is considerable, it may be practiced in preference to the abdominal method, as a palliative or curative means.

To give some idea of the mortality which has attended tapping through the abdominal wall, the following has been offered.

Simpson calculated that it was not less than 1 in 6.

Dr. Fock,* of Berlin, in 1856, published a table of 132 cases, 35 of which were fatal, or 1 in 5½ cases—in from a few hours to a few days.

Kiwisch,† lost 9 out of 64, or 1 in 7. He analyzed 130 cases of first tappings—of them 17 per cent died within a few days.

Southam,‡ of Manchester, reported a table of 20 cases: 4 died within a few hours after first tapping; 3 within a month.

Meigs§ says that of cases witnessed, nearly one half died from first tapping.

Of *T. S. Lee's*‖ table of 20 cases, 10 died within seven days from the immediate effects of the operation and 2 more died within two weeks.

These statistics certainly show a very heavy mortality for a palliative operation.

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* SIMPSON—Clinical Lectures, p. 450

† SIMPSON—Clinical Lectures, p. 450.

‡ SIMPSON—Clinical Lectures, p. 450.

§ SIMPSON—Clinical Lectures, p. 450.

‖ PEASLEE—p 196.

Others have been more successful. *Velpeau* stated that he had tapped at least 310 times in 30 years, and had lost only 4 patients closely after the operation. Doubtless, a large number of them were in a few patients, for one was tapped 38 times. Nothing is better established than that subsequent tappings are much better borne.

Spencer Wells says he very much doubts if the mortality is as much as 1 in 60, and he believes it is considerably less in his experience. The kind of cyst tapped by *Velpeau* and *Spencer Wells* is not stated, but it seems probable from more recent experience, that only single cysts were punctured.

Peaslee thinks that if statistics were made up from cases in hands of the general practitioner, no better results could be shown than in the tables of *Fock* and *Lee*. He concludes that the tapping of poly-cysts is attended by a mortality of at least 50 per cent.

Now, while it is acknowledged, borne out by experience that tapping, especially first tappings, of polycysts is attended with greatest danger, it is not limited to this class of cysts. The reports of *Velpeau* and *Spencer Wells*, even if reference is had to monocysts, prove this. *Peaslee* himself a strong advocate for tapping of monocysts, states that he has lost 4 out of 63. Other proof is abundant.

It has been thought that aspiration diminishes these dangers. It would appear rational to think so.

Dr. H. F. Walker,* of New York, first suggested the use of the hypodermic syringe, not to empty the sac, but to draw off sufficient fluid for diagnostic purposes. He speaks of the little operation as effectual and safe. Thomas advises it and says: "before the operation of ovariotomy always remove a small amount of fluid by the hypodermic syringe for chemical and microscopical examination."

But, *Peaslee* † considers aspiration no safer than the use of the ordinary trocar, and that it makes but little difference whether the opening is slightly larger or smaller. Inflammation of the cyst followed aspiration within 48 hours in a case he intended to operate on the following day.

Hegar ‡ refers to a fatal case notwithstanding a very fine trocar was used.

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* Am. Journal Obstet., Vol. iii, p. 120.

† Am. Journal of Obstet., Vol. ix, p. 146.

‡ American Journal of Obstetrics, Vol. x. p, 170.

Munde[*] reports a case where aspiration was followed by such severe symptoms indicative of peritonitis, that it was deemed advisable to proceed to immediate removal of the tumor as a forlorn hope. On the opening of the tympanitic abdomen—progressive inflammation of the peritoneum was encountered. Patient died six days later.

Dr. Goodell[†] referring to a fatal case in the hands of Dr. Lusk, stated that it made the sixth he knew of, in which fatal results had followed the use of the needle in tapping ovarian cysts.

Dr. Lusk[‡] reports two other cases, each fatal in two days after the use of the small aspirator needle.

Dr. Thomas,[§] however, has used the needle frequently at Woman's Hospital with no bad results.

But experience with this very simple instrument shows it is not free from danger. Through the smallest opening made, the fluid may enter the peritoneal cavity.

Dr. Thomas[||] reports a case seen with *Dr. Peaslee*, where ovariotomy was decided on after the withdrawal of a clear, albuminous fluid by the hypodermic syringe. During the operation, the sac was found to have emptied itself into the peritoneum through this minute opening.

Dr. A. M. Fauntheroy,[¶] (Stanton, Va.) meet with severe peritonitis, set up in few days after puncturing with a hypodermic syringe.

Evidently these few instances are but a small per cent of the unfavorable cases repeatedly occurring.

Now, it is not a very difficult matter to balance the results for good and bad, and determine which outweighs. For remedial purposes, the ill effects of tapping so greatly preponderate, both in number and degree, that no one is left in doubt. The number who have died within a few days after tapping is so far in excess of the number who have been cured by the operation, as to leave a very unfavorable showing for the latter.

An operation becomes justifiable according to the risk to life incurred therein, the urgency for immediate relief, and finally the ultimate permanent good promised. On this basis of estimate, it is clear that one is not justified in tapping to the extent that it is usually performed, nor is he barred in affording temporary relief from the effects of pressure of an enormous developing cyst. From such a cause, life may be held in immediate jeopardy. The dyspnœa, the pain, vomiting, the urinary suppression, call for immediate attention. The condition is too critical to render ovariotomy advisable. Abatement of the symptoms for a few weeks, by emptying partially or completely the sac, may enable the patient to rally, to a degree far more favorable for the radical removal of the tumor. The number of such cases is small. The co-existence of ascites, or pregnancy, may afford examples, though by no means the only ones. Notwithstanding the risk attending tapping itself under these circumstances, this risk together with the subsequent radical operation of exterpation, is less, really, than that attending an immediate ovariotomy.

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[*] Am. Journal Med. Science, Jan., 1878.

[†] Am. Journal Obstet., Vol. x, p. 710.

[‡] Am. Journal Obstet., Vol. xi., p. 144.

[§] Am. Journal Obstet., Vol. xi., p. 145.

[||] THOMAS, Diseases of Women, p. 700.

[¶] Trans. Virginia Med. Society, 1875.

As for the further remedial effects, the operation of tapping should be limited, for obvious reasons, to well defined par-ovarian cysts. The danger here is brought to a minimum, the prospect of permanent benefit or cure to a maximum.

In view of the fact that the vast majority of tappings even in mono-cysts, prove unsuccessful as to cure, and may regardless of the method of puncture employed, be fatal—the operation, save under the rare exceptions mentioned, should, I believe, be abandoned. And in view of the greatly increased danger of puncture of polycysts, the observance, if possible, of this rule with them, is more urgent and should be more rigid.

In estimating the advantages as balanced against the dangers, for *diagnostic* purposes, the line of duty of the operator is equally clear and well defined. To say, as advised by *Peaslee* that only unilocular cysts should be tapped, presumes that one can differentiate unilocular from multilocular cysts—which to say the least, is very difficult if not an impossible task. Such diagnoses are always more or less obscure, and are best made only by tapping itself. Is one justified in incurring the risk attending tapping for the sake of diagnosis? He must know if he has acquainted himself with the literature of this subject, that he may bar himself the privilege of affording the only hope of the patient's recovery, ovariotomy. To endanger life, it may be unnecessarily, and deprive that life of the only chance for a restoration to health, is a fearful responsibility. It will not do to say his method will do away with all risk. These accidents referred to, have happened, and will continue to happen, in the most skillful hands, and with the most approved methods of operating and means of instrumentation. Happen they will, by virtue of the anatomical relation of the surrounding parts, and the character of the fluids to be dealt with. *Dr. Atlee* states that he has never known inflammation to follow complete emptying of a cyst.* But when is one to know before hand that complete emptying of any cyst is possible. Past experience clearly should influence the surgeon to limit tapping in diagnosis to the smallest number of cases, and then only under the circumstances of imperative necessity by reason of special obscurity. If diagnosis is reasonably clear and certain, tapping is unnecessary and unjustifiable. If practiced by reason of doubt, and such a circumstance may render it permissible, it should be with the full understanding that on the first appearance of symptoms of mischief, the final operation is to be proceeded with. For this, previous preparation is to be made, that no delay is had. Peaslee offers this prudent advice. This is the only safe course of conduct with monocysts. With polycysts, however, it is hazardous to wait for the appearance of unfavorable symptoms. Since these symptoms occur in the majority of cases of first tappings in this variety, and according to statistics are followed by fatal results in 50 per cent, there should be no delay. So soon as the character of the polycyst is determined, by withdrawal and examination of the fluid and conduct of the cysts remaining, the whole tumor should be extripated. The two operations are one and at the same time.

The operation of ovariotomy has quite frequently been performed while co-existing inflammatory action of the peritoneum and cyst, following tapping, was progressing; and while such a circumstance materially increases the mortality of the operation, it does by no means, render it hopeless. Successful cases have happened in the hands of *Spencer Wells*, *Keith*, *Thomas*, *Peaslee*, *Emmet*, and *Goodell*.

In conclusion, I only express a well formed conviction by saying, that the welfare—the life of not a few suffering woman hopelessly doomed, save for ovariotomy, are best promoted by limiting tapping to a *minimum*, and *then only* for the *strongest reasons*.

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* I nearly lost a patient from peritonitis and inflammation of the cyst with rapid refilling of colloid material, after *complete emptying* of the same (mono-cyst) by aspiration. I performed ovariotomy some two months afterwards, patient died with pulmonary complication. This result of this tapping by aspiration, made such a profound impression on my mind that I would not again under similar circumstances ever tap.

Art. 2. — Diseases of the Rectum. — Observations on those Structures in the Mucous Membrane of the Human Rectum known as the Valves of Houston.

No. IX.

By REUBEN A. VANCE, M. D., Gallipolis, Ohio.

In an article which appeared in the *Philadelphia Reporter* of March 16th, 1878, I called attention to those structures in the human rectum which I thought properly belonged to the class of rudiments. Without touching upon those questions, more interesting to a naturalist than a physician, which an allusion to rudimentary structures will always evoke. I desire now to direct attention to the interesting and practical paper in which Mr. Houston first brought these valves to the notice of the profession. His original article is contained in the fifth volume of the *Dublin Hospital Reports,* which appeared in 1830, and, as it extends over very few pages, is inaccessable to those not possessed of that series of reports and, moreover, is of interest to every practitioner. I shall make no apology for embodying it in this paper. It was entitled "*Observations on the Mucous Membrane of the Rectum*" and commenced on the 158th page of the 5th volume of the reports. The following is a literal transcript:

"The structure and arrangement of the mucous membrane of the rectum ought to be perfectly understood, with a view towards the accurate diagnosis, or successful treatment of its diseases; and particularly, in order to be able to introduce instruments with dexterity along its canal. It is a subject the consideration of which has certainly not been neglected, but nevertheless there is one material circumstance connected with the disposition of the membrane which either is not generally known, or is not weighed as its importance deserves. In the natural state, the tube of the gut does not form, as is usually conceived, one smooth uninterrupted passage, devoid of any obstacles that might impede the entrance of bougies; it is, on the contrary, made uneven in several places by certain valvular projections of its internal membrane, which standing across the passage, must frequently render the introduction of such instruments a matter of considerable difficulty. Cloquet, and some other anatomical writers, have made a cursory allusion to this condition of the membrane; but all the authors, who have treated of diseases of the rectum, appear to have wholly over-looked it.

"My attention was first called to these valves by preparations which I made to demonstrate the relative situation of the pelvic viscera, and to display the natural state of their cavities; and from the manner in which the making of these preparations was conducted, viz., by distending and hardening all the parts with spirit previously to being cut open, the valvular condition above alluded to was most satisfactorily exhibited.

The valves exist equally in the young and in the aged, in the male and in the female; but in different individuals there will be found some varieties as to number and position: Three is the average number; though sometimes four, and sometimes only two are present in a marked degree. The position of the largest and most regular valve is about three inches from the anus, opposite to the base of the bladder. The fold of next most frequent existence is placed at the upper end of the rectum. The third in order occupies a position about midway between these, and the fourth, or that most rarely present, is attached to the side of the gut, about one inch above the anus.

"In addition to these valves, of tolerably regular occurrence, there are frequently several intermediate smaller ones, but which, from their trifling projection and want of regularity in their situation, merit comparatively little notice.

"The form of the valves is semilunar; their convex borders are fixed to the sides of the rectum, occupying in their attachments from one-third to one-half of the circumference of the gut. Their surfaces are sometimes horrizontal, but more usually they have a slightly oblique aspect, and their concave floating margins, which are defined and sharp, are generally directed a little upwards. The breadth of the valves about their middle varies, from a half to three-quarters of an inch and upwards, in the distended state of the gut. Their angles become narrow, and disappear gradually in the neighboring membrane. Their structure consists of a duplication of the mucous membrane, enclosing between its laminæ some cellular tissue, with a few circular muscular fibres.

"The relative position of the valves, with respect to each other, the pressure of these valves, the gut resembles somewhat the colon in the condition of its interior; but in the peculiar spiral arrangement of the valves, it bears more an analogy to the large intestine of some of the lower animals, in which, as for example the cæcum of the rabbit, the large intestine of the serpent and dog-fish, a continuous spiral membrane traverses the cavity from end to end, and gives to the alimentary matters a protracted winding course towards the anus.

"The only method by which the condition of these valves in the distended state of the rectum can be displayed, is that above noticed, of filling the gut with spirit previous to being disturbed from its lateral connections. By the ordinary procedure of distending it after removal from the body, the valves are made to disappear. Their presence may like-wise be ascertained in the empty state, if looked for soon after death, and before the tonic contraction of the gut has subsided. They will then be found to overlap each other so effectually, as to require considerable manuvre in conducting a bougie, or the finger, along the cavity of the intestine.

"Mr. Colles, in an excellent paper on Diseases of the Rectum, to be found in another part of this volume, makes some observations corroberating in the fullest manner the fact I wish to establish. He says the finger cannot always be insinuated up the rectum—that the gut feels as if its cavity were obliterated.

"The experience of Mr. Crampton goes like-wise to establish not only the existence of such valves in the rectum, but also their spiral arrangement. He uses a bougie bent with a couple of light spiral turns, and in the introduction, moves it about gently between his thumb and fingers. Mr. Crampton was led to curve the instrument after this fashion, from having noticed that of itself it assumed such a form when allowed to become soft, by remaining some time up the gut, and he practices the spiral movement while introducing it from an observation, that during its return down the canal, after being thus modelled, it is disposed, if handled loosely, to assume that course. All these facts, derived from observations both on the dead and living body, leave no doubt as to the existence of the valvular arrangement in the interior of the rectum, and point to the advantage which may be derived in practice from a proper attention to them.

"Considered physiologically, this conformation of the gut is such as might naturally have been expected to exist, as necessary to support the weight of fecal matter, and prevent its urging towards the anus, where its presence always excites a sensation demanding its discharge. But considered in reference to disease, the valves or shelves thrown across the cavity of the intestine are fraught with still more importance. They may possibly become the most frequent seat of that morbid alteration of the inner membrane, termed stricture. I have not, however, examined the subject with a view of determining this question, but several facts give probability to the conjecture. In the first place this disease is generally confined at its commencement to a portion of the circumference of the gut; and secondly, the seats of this occurence correspond very much to the places where these valves are most often found, viz., near the orifice, about three inches up, or at the top of the rectum. There is still another more weighty reason why the surgeon should bear in mind the existence of these folds, that he may not mistake them for strictures in the gut, a mistake which it is to be feared has often happened to those who have reported such numerous cases of this disease, and which, by leading them to the frequent practice of bougies, may have brought on the very malady which their instruments were intended to remove."

There was an illustration accompanying the foregoing paper in which the valves were delineated. Also, with it was an outline figure of Mr. Crampton's spiral bougie. Before alluding to any of the points connected with this paper I desire to quote a couple of paragraphs from my article in the *Philadelphia Reporter* of March 16th, 1878, entitled "*Rudimentary Structures in the Human Rectum—Spiral Folds and Valvular Projections from its Mucous Membrane.*" to which I have already alluded;

"In 1865, while dissecting in the University of Michigan, I found that in my subject the mucous membrane lining the rectum was thrown into a spiral arrangement which, commencing on the right side of that organ at its junction with the sigmoid flexure of the colon, passed downward, backward and to the left, until the side opposite the point where the valve commenced was reached. In this situation the duplication was as large as on the right side above, where it commenced. The same was true of a point corresponding with the base of the bladder on the internal aspect of the anterior wall of the rectum. The valve could be traced from this situation, at first downward and backward to the posterior wall of the viscus, and then downward and forward to a point about three-quarters of an inch above the anal orifice, where it seemed to terminate on the left side in one of the columns of Morgagni. The valve gradually enlarged and became more and more prominent as its course from the left side along the posterior wall and around the right side was traced from the column of Morgagni to the base of the bladder. In the latter situation it was more than half an inch broad, and this breadth was preserved along the anterior wall and up the side of the rectum, until it joined the duplication on the left side, with the exception of one point where, for the distance of an inch and a quarter, the duplication was very narrow indeed—perhaps no more than the eighth of an inch in depth. This defective spot in the spiral arrangement of the fold of lining membrane was on the left side, immediately in front of the broad and well marked valve placed below and on the side opposite to the point where the duplication was first manifested, at the junction of rectum and colon. The duplication of the mucous membrane could be traced from this defective point spirally around the left side and posterior wall of the rectum, to the end on right side at the termination of the colon, where it blended with the lining membrane of the part; between the valves a narrow portion similar to that between the valve on the left side, and the one opposite the base of the bladder, could be seen on the posterior wall of the intestine. In other words, from one of the columns of Morgagni, on the left side of the terminal portion of the rectum, to a point on the right side of the junction of the colon and rectum, there was a duplication of the lining membrane of the latter organ—a duplication varying in width, but always persisting—which pursued a spiral course, and made one and a half circuits of the intestine. The free edge of this spiral duplication of the lining membrane of the rectum was directed inward; the thickness as well as the width of the valves varied in different situations. The structure was thickest and strongest where the fold was widest; this was especially so at its commencement superiorly on the right side, opposite the base of the bladder on the anterior wall, and at about midway between these points of greatest development (particularly on each side of the one located on the left wall of the rectum) were the situations where the duplications were least marked. It is to be regretted that this specimen was removed from the body, and its relations with neighboring parts broken up, before the peculiar character of its lining membrane was observed."

"During the past twelve years I have made critical examinations of the rectum in thirty-four cases. In other instances I have either seen the rectum after it has been removed; or have examined it on the cadaver without taking it out. But in the thirty-four cases alluded to I have examined it, so far as possible, in its natural situation, and have then taken it out and subjected it to a thorough investigation. In five cases the appearances have resembled those just described, and in seven there were separate projections meriting the name of valves. In all thirteen cases—for the case detailed at length is included—there were duplications of the mucous membrane on the anterior wall, opposite the base of the bladder, and at the junction of the colon and rectum on the right side of the intestine, while in twelve of the cases the valve on the left wall, above the base of the bladder, was also distinctly marked. In three of the seven cases in which the valves were separate, there was a valve about an inch above the anus on the left side; and in each of these cases the valves of the base of the bladder, the left wall of the rectum, and on the right side of the junction of the colon and rectum, were well developed. In one of the remaining four cases of this group there were but two valves; one at the base of the bladder, and the other at the commencement of the rectum on the right side; while in the other three, the separate projections were located at the base of the bladder, the superior extremity of the rectum on the right side, and on the left side between these two points at the usual place. In six cases there were duplications of the lining of the intestine opposite the base of the bladder, on the left side of the rectum above, and on the right side of the upper extremity of that organ, and these duplications were connected together by narrower and thinner, yet equally well-marked folds of mucous membrane. In twenty one cases there were neither folds nor valves."

It is not my intention to discuss the various points made by Mr. Houston in reference to the physiological offices, or pathological bearings of the structures he brought so prominently to the attention of the profession. Not only had the influence he ascribed to these structures been denied, but the existence of the valves themselves has been questioned, and that too, by writers who have also taken the trouble to endeavor to prove that Houston was not only mistaken as to the reality of the structures he supposed he had found, but that these valves were described long before he was born! There is no disputing the fact that Cheselden alluded to valves in the rectum; that long before that eminent English surgeon flourished other medical writers and anatomists had spoken and written of similar structures; and that at various periods prior to Houston's publication. Morgagni, Glisson, Portal and other continental observers made reference to duplications of the lining membrane of the rectum and ascribed to them a valvular office. Yet, if I have read the record correctly, I can find no reference to a complete spiral band-like arrangement, such as was approximated in six cases to which I have referred, and believe that my paper in the *Reporter* is the first description of that peculiar state of the rectum which has been published. Mr. Houston, it will be observed, complained that those who had written on diseases of the rectum paid no attention to these valves. The late Dr. Bushe, of New York, whose valuable work on rectal and anal diseases appeared shortly after Mr. Houston published the above quoted paper, was led by it to re-investigate the anatomy of the rectal mucous membrane. A series of careful examinations led him to declare, most unhesitatingly, that the folds to be observed in that structure are accidental; that the tissues there are lax and naturally double up, but that the duplications thus formed are in no sense valves; and that so far as the performance of the functions ascribed them by Mr. Houston is concerned, that gentleman was in error. Dr. Bodenhamer arrived at the same conclusion, substantially, as can be seen by reference to his work on "The Physical Exploration of the Rectum." Both Bushe and Bodenhamer acknowledge the presence on the rectal walls of loose folds of their lining membrane, but both hold them to be accidental in origin and of no physiological importance. The text-books in general use in this country—the works of Wilson and Gray—quote Houston's researches with approval and speak of the valves as if one or more of them were constantly present. Yet neither Syme, Quain, Ashton, Lee, Curling, Smith, Van Buren, Allingham nor any other writer on diseases of the rectum, with the exceptions above noted, make allusion to them. The existence of spiral folds, extending around the inner aspect of the rectum and reaching from one end of the organ to the other was never announced (to my knowledge) prior to my publication in the Philadelphia *Reporter*, of March 16th, 1878.

In connection with the original paper of Mr. Houston describing these independent valves of the rectum and the foregoing extracts from my own observations of the frequency with which these separate duplications of mucous membrane occur, and detailing cases of continuous spiral folds in the lining membrane of the rectum, I desire to quote the concluding paragraph from my paper in the *Reporter :*

"In view of the foregoing facts, is it not reasonable to suppose that both spiral folds and independent valves exist in the human rectum as rudiments, and that, when present in that organ, they must be looked upon as illustrations of the law of reversion?"

Mr. Darwin, in the first chapter of his work on "The Descent of man" indicates the nature of the evidence bearing upon the origin of man, and after briefly discussing that referable to bodily structure and embryonic development, enters with more fulness upon the subject of rudimentary organs. Rudimentary organs, he tells us, are eminently variable, and as they are useless, or nearly useless, they are no longer subject to natural selection. Not only are rudimentary organs variable—they are often wholly suppressed.

Such structures are by no means necessary for the perfection of the organism, and when they develop to an unusual degree, they illustrate what is known as the law of reversion—they are anomalies that display the tendency of the human frame to revert to some former and ancient type of structure.

I have adduced the foregoing facts relative to the nature and character of the duplications of the lining membrane of the rectum because, it strikes me, their significance and peculiarities have heretofore been overlooked. Thus, when speaking of the rudimentary structures in the human body, the illustrious author of the "Descent of Man" says:

"With respect to the alimentary canal I have met with an account of only a single rudiment, namely: the vermiform appendage of the cæcum*."

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* DARWIN—"Descent of Man," p. 29.

Art. 3.—Relation of Physical Exercise to Consumption.

Read before the Cincinnati Medical Society, Jnne 4th, 1878.

By R. B. Davy, M. D., Cincinnati, O.

The adage that, "it is better to wear out than rust out," was probably never so applicable in any case as in that of an individual predisposed to consumption. Perhaps there is no condition which responds to exercise more promptly, and surely there is none where exercise is employed with more permanent benefit.

The subject of exercise naturally divides itself into general and special, and pertains severally to the body at large, or a particular part of it.

The effect of general exercise is felt by all the organs and tissues; the tone of the system is raised, and a healthy action of the different processes enhanced. By quickened circulation and increased destructive metamorphosis, the appetite is sharpened, the digestion improved, and good blood is the result.

The lack of general exercise shows itself in torpidity of the different functions, malaise, lack of appetite, and a general atonic condition of the system.

But in order that we may understand the good effects of exercise, let us study the mechanism of nutrition.

One of the most perplexing problems which has lately engaged the attention of physiologists, is that of determining the origin of muscular power. Some observers, following the teachings advanced by Liebig some years ago, adhere to the belief that muscular force is generated at the expense of muscle; while others, with equal right, claim that the origin of the nitrogen excreted is the blood, and quite distinct from muscle. However this may be, (and in the present state of our knowledge, there is no means of arriving at a positive conclusion), everyone is aware that muscle is indispensible in the production of the motions of the body; and whether the force manifested is developed at the expense of the muscle itself, or the blood in which it is bathed, need not materially affect the manner of treating the subject. That muscle suffers destructive metamorphosis, and is repaired like all other tissues, is a fact denied by no one; but the stumbling-block for Pavy and his followers is that the bulk of excreted nitrogen should proceed from muscular loss. Dr. Edward Smith has shown from prisoners working the tread-wheel, and "Bischoff and Voit from a dog working the spit-wheel, that there is scarcely any increase in the elimination of nitrogen under the most severe exertion." There is always a considerable increase in this element after the ingestion of food largely nitrogenous. Now the puzzling question is to determine whether the increase of nitrogen is made up from the elements of the food ingested, or the metamorphosed tissue. Our certain knowledge on the subject does not justify any positive conclusion, but it is more than likely that, in the main, the ideas of Flint are correct. As a solution, it may be suggested that without the means of supply, the metamorphosis of muscle cannot take place completely, although the tissue may be unfitted for further work; but as soon as the supply is furnished, the interchange of elements takes place, and urea is the product. For our present purpose the mere mention of these contending hypotheses is sufficient, and we shall pass on rapidly to consider the influence of exercise on muscle.

Nothing is more convincing to us in the study of this matter than our everyday experience. We notice the enormous hypertrophy of the voluntary muscles in answer to exercise, as instanced in the arms of the blacksmith and limbs of the ballet-dancer; and the same effect throughout the body is apparent after training for the prize-ring. Compare these conditions of the muscular system with their opposites—delicate females who sit idle, or devote their time to light reading, professional idlers of the opposite sex, editors and authors, who spend most of their time in writing, or dentists, whose exertions seldom exceed that required in the operations on the teeth. If you examine the subjects of these opposite conditions, you will find the muscle in the one instance to be firm to the touch, red in appearance, and powerful; in the other, flabby, pale, and weak. Chemically, the musculin of the first contains much more solid matter and less water than that of the second, and thus the contrast might be extended. From that portion of the muscular system most under the control of the will, to that portion most removed from its control, we have all intervening grades, which severally differ in appearance and function. But there are none of these, from the webbed fibre of the heart to the smooth covering of the blood-vessels, which do not hypertrophy or atrophy in answer to the various influences to which they are subjected. Exercise of the involuntary muscles is highly important, and when regulated from the centre which presides over organic life in health, it is perfect; but often, as in disease, these structures become overgrown, and innumerable evils follow. What could be more disastrous than a hypertrophied condition of the heart, or what more productive of evil than insufficient power of the lower bowel, from which slight disorders arise, to grow into considerable ones.

Voluntary exercise is a tonic which acts indirectly upon every tissue in the body. Carried to the extent of training, which comprises regulated diet and exercise, the physical organization acquires its greatest perfection. When fully prepared, the prize-fighter is without fat or dead weight of any kind, and his body represents the maximum of strength and endurance. Thus the champion of the prize-ring is regarded by Flint (Vol. III. Page 375) in his physiology of man as the most perfect physical development of which we have any knowledge; and the chief factor in the production of this state is exercise.

But very few persons, indeed, undergo training. The athletic sports, such as rowing, base-ball playing, tumbling, etc., come next, and afterwards, a partial exercise of the body only, as in walking, hunting, bowling, etc. The kind of exercise provoked by different professions and occupations is interesting. Running the sewing machine is the almost exclusive work of the feet, and hand-sewing is accomplished with the arms alone. The blacksmith, wood-chopper, cobbler, etc., exercise the upper extremities; while the dancer, tread-wheel worker, velocepedist, etc., use the lower ones. Thus a predominence of development is always apparent in muscles which are exercised most.

This is easier told than explained; but if we reflect that all organisms are struggling for existence, we can see that the over-development of muscle here and there is, as it were, the fortification of some weak part, and may be compared to the hypertrophy of the cuticle, etc.

Let us examine, for a moment, the degree of exercise taken by most people of the world, and to arrive at this we have only to examine the state of the muscles. If the structures of the limbs be examined by the touch, they will be found, almost without exception, to be firm. Those of the dancer or pedestrian may surpass in size those of other individuals, be firmer, and exhibit more strength; but notwithstanding this fact, unless we take an individual confined to bed or chair, we find the beneficial effects of exercise far more apparent, ordinarly, in the inferior than superior extremities. Locomotion of the body is more necessary than manual labor, and more apt to be carried on for various reasons. The rich never perform manual labor, but are often placed in positions where a carriage is not to be had; they are compelled also, to walk very often in hunting and other sports in which they engage. The middle classes representing clerks, etc., depend upon their locomotive powers perhaps more than others, as they are utalized in going to and returning from business, and while there. Laborers walk to and from their work in general. They are, while engaged, seldom afforded an opportunity to rest the lower extremities, while the exertion is variable as regards the upper. All the evidence then goes to show that, for all classes, the muscles of the inferior extremities are better exercised, and in a better state of nutrition than the superior ones. The greatest contrast will probably be noticed in the middle classes, and it can be accounted for almost purely by the relative amount of exercise undergone. The muscular substance of the upper extremities, especially that possessed by clerks, book-keepers, architects, dentists, editors, and persons who exercise no more, is comparitively soft, and in many cases, flabby, weak, and ill nourished.

The upper extremities, arguing from their position and connection with the body, influence, to a great extent, the act of inspiration. Especially is this the case in individuals who are bent slightly forwards. The muscles behind seem to have given way to those in front, and the arms and shoulders pull down the ribs by their weight, greatly embarrassing the inspiratory muscles already weak in such individuals. As an example of this, it may be remarked that peddlers are very subject to consumption. But there is a faulty carriage of the body noticed particularly in adolescense, which, I think, depends upon something else. It is true that in cases where the muscles possess their proper tone, there is nothing of this kind present, but aside from this there is always a tendency to weakness of the extensors as compared with the flexors. We may look upon the muscles on the posterior aspect of the trunk as extensors, and those on the anterior aspect as flexors. Now even without supposing a difference of tone to exist in these opposing sets of muscles, it may be concluded from the greater size of the flexors that the preponderance of power is in their favor. When we come to weigh the erector spinæ mass, levator anguli scapulæ, rhomboideus and trapezius, against the oblique abdominal, and greater and lesser pectoral muscles, the truth is at once apparent.

But faulty carriage of the body is not produced by contraction of the flexors, but by their greater muscular tension. If a muscle on one side of the median line is divided or paralyzed, the corresponding one of the opposite side draws on the part, and produces deformity. The tension of the flexors of the trunk overcomes that of the extensors, thus bringing about the condition in question. When the influence of the will is withdrawn from these muscles, it becomes more apparent as is instanced in the closed condition of the hands and flexed condition of the limbs during sleep. Persons are never conscious of being "stoop-shouldered" and always experience an exertion in "straightening up" when reminded of it. Cases of this kind present a weakness of constitution which does not coexist with persistent bodily exercise.

That this faulty carriage of the body should be more prevalent in youth than at other ages, coincides perfectly with the fact that phthisis has chosen this in preference to all other ages for its advent. We may conclude from this coincidence alone that there is an important connection between the two conditions; but we will not stop here.

"Hutchinson, an English writer, has demonstrated by numerous experiments on the respiration, that, in a healthy person, there is a certain minimium of the so-called vital respiratory capacity, varying according to the age, sex, weight and size of the body. Various young individuals fell about 600 cubic centimetres short of this minimium; and such persons, although no disease could be detected by other modes of physical examination, subsequently became consumptive. The only explanation left to us is that the deficit is due to feebleness of the respiratory muscles, and that this is the efficient cause of the ensuing phthisis. The slender neck, the prominent clavicles, the broad depressed intercostal spaces, and the scapulæ projecting like wings show that the principal respiratory muscles have been atrophied. The diminished respiration in the upper parts of the lungs, and the exaggerated respiration in the lower parts resulting from this cause, serve to explain the very general fact that pulmonary consumption always begins in the apices of the lungs." (*Rühle*). *

It must not be understood from this that there is no other factor concerned here; for the unequal circulation and lodgement of foreign particles in this part (which, however, is probably caused indirectly by muscular inability), is really no trifling influence. If a set of muscles is not exercised properly, it is pretty good evidence that the circulation of blood through them is deficient; and if the circulation is deficient, the muscles will become atrophied, and be unable to produce the proper degree of motion of the ribs required in respiration. According to Rindfleisch, mucus becomes inspissated in the apices, where dust also penetrates; and deep, full breathing is required to remove it.

Collections of this kind remain in the weak lung, and set up an inflammation which results in consumption. This is an instance where the disease can be traced directly to lack of exercise of the respiratory muscles.

The frequent occurence of consumption in persons of particular temperaments has undoubtedly a good deal to do with general and special exercise. According to Dr. E. Smith, the temperaments which suffer most are the sanguineo-nervous and lymphatic. But they are attacked in different ways. The sanguineo-nervous temperament, or first extreme, is said to possess a tendency to excess of action, and therefore to waste; the lymphatic, or other extreme, represents comparitive inactivity of mind and body, and tends to exhaustion from inability to reproduce the natural waste.

In the case of temperament, we may look to something beyond the natural motions of the body for a solution of the exercise problem. Heredity, in transmitting the "vulnerability" of Niemeyer, is the most important cause, and this creates temperament the instrument for bringing about the changes entailed by exercise. Whether temperament can be modified to any great extent by education and training remains to be seen; but judging from this influence in other things, we cannot help according some value to it here. That the natural aversion to exercise in the lymphatic individual can, to a great extent, be overcome is certain; and in proportion as this is done, and the muscular system exercised, may we look for an improved condition of the body.

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* Ziemssen's Cyc. Vol V. Page 486.

I can see how persons of the lymphatic temperament may gradually drift into that condition favoring the production of consumption, but that those of the opposite extreme in temperament should be liable to the same thing is puzzling. The explanation given by Dr. E. Smith is hardly sufficient, and leaves the impression that innervation is at fault.

In this place something may be said about the motor centres located in the brain. If there are such centres, such as late English and French observations go to show, they are subject to similar changes as the muscles over which they preside, They are hypertrophied and atrophied in exactly the same ratio, and when a limb is lost, the centre which presides over its muscles is abolished. In the *Tribune Medical*, of Dec. 2d, '77, a number of cases are published by Drs. Le Double and Viollet going to prove atrophy of the fold passing from the second left frontal convolution to the anterior marginal one (the supposed centre of motion for the lower limb) in consequence of amputation of the right thigh. The works of Duret, Hitzig, Schiff, Hulings Jackson, Charcot, and Lucas Championiere are almost conclusive in establishing the truth of the hypothesis, while many others have presented additional cases whose evidence is in the same direction.

In the Goulstonian lectures for 1878, by Dr. David Ferrier, which have appeared lately in the *British Medical Journal*, very much is to be found on this subject; and the conclusions are that the different groups of muscles are presided over by separate centres, many of them having been actually located by the occurrence of cerebral disease. For every muscle then, or set of muscles, which has an individual action, we may imagine a centre in which the record of the muscle may be read. If it is slow or quick in its motion, disposed to atrophy or hypertrophy, scanty or rich in blood, this area of nervous elements must be held accountable for it. Heredity has stamped upon the individual certain peculiarities, and we may look to education in the garb of exercise, and little else, to modify them. It has given to the sanguine and nervous temperaments their hot blood and fiery action, and to the lymphatic its characteristic coldness. This, then, is the relation which exercise bears to consumption in the sanguineo-nervous individual.

The simple exercise of the muscles necessary to the production of speech as in ordinary conversation is of great importance in the prevention of consumption; and this must be greatly magnified when extended to public speaking, singing and performing on ordinary wind instruments.

"M. Burg, in a communication to the Academy of Medicine of Paris, March 12th, 1878, states that, in 1838, Dr. Corndet wrote, in the *Annales d'Hygiene*, Vol. XIX: "Silence debilitates the digestive system, weakens the respiratory organs and predisposes to phthisis." Some years later, Fourcaud maintained the same thesis, basing it on statistics which showed that, in certain central prisons where the cell-system was in operation, the mortality from phthisis amounted to half the general mortality; and even in some instances exceeded that limit, as at Poissy, where it was at the rate of 60 per cent. M. Burg has made a careful examination of official documents placed at his disposal by the French authorities, and arrives at the following results: On May 10th, 1839, appeared a ministerial decree, ordering the observance of the silent system in the central prisons. From that time the death rate, which had remained stationary for some years at about 6.25 per 100, rose progressively to 6.85, 7.95, 8.38 and finally to 9.95 per cent., notwithstanding the most praiseworthy efforts of the prison authorities to improve the diet and hygienic condition of the prisoners. The rovolution of 1848 intervened; discipline was relaxed, the decree of 1839 became a dead letter, and the death-rate, which was 9.95 per cent., in 1847, fell to 6.96, then to 5.24 per cent., where it remained nearly stationary until the day when after the *coup d'etat* in 1852, the law was again put in force. The death-rate again rose to 6.31 in 1853, to 7.01 in 1854, and during the whole time diseases of the respiratory organs were the cause of these oscillations. On the other hand the mortality statistics of the agricultural penitentiary establishments in Corsica, where the silent system is not in force, show a general death-rate of 1 per cent., in excess of free life, and a death-rate of 6.5 per 100 from pulmonary phthisis, which is about a half less than is found in the non-criminal population of the same age." (*British Medical Journal of April 6th*, 1878, *P.* 495).

The effects of exercise of the respiratory muscles are well illustrated in certain classes of public speakers; thus the comparitive freedom of clergymen from phthisis is accounted for. Ruehle states: the cultivation of the voice in singing is useful, as in his opinion trained singers rarely become consumptive.

There is some diversity of opinion in regard to the occurrence of tuberculosis in emphysematous lungs, and since emphysema is caused in great part by expiratory pressure, the occupation of cornet-playing and the like acquire unusual importance. Some pathologists have claimed for emphysematous patients an immunity from tuberculosis; but Hertz states tersely that, "persons affected with emphysema do not, indeed, often contract tuberculosis, but they may be attacked with acute miliary tuberculosis as well as with chronic tuberculosis, and moreover, vicarious emphysema may be associated with any form of tubercular disease." To evade the conclusion, however, which might be drawn from this, we have another statement from the same author that, "only a few of those who play on wind instruments become effected with emphysema."

There are often other factors—faulty nutrition, the intervention of disease, etc., which attend the extreme effects of exercise of the respiratory muscles. In the management of consumptive cases authors are quick to discountenance the more rigorous exercise of the arms; thus the parallel bars and cross-bar have been interdicted by Rühle, and, I am inclined to think, very properly so.

Injurious Styles of Dress

Have always been the occasion of much comment from the profession, and especially has the corset been attacked as an enemy to health. Let us see if it is really such an evil.

I have no hesitancy in saying that it is hurtful in proportion as it interferes with the respiratory act; but the fact that female breathing is thoracic in character, and the corset rests upon the hips and constricts only the abdomen, should be enough to exonerate it from the accusations it daily receives. We can see how such a garment worn by the male might do mischief, since by its use one of the most important respiratory muscles, the diaphragm, would be almost deprived of its action. The corset is not always guilty of the charges brought against it, but in many hands, it is not a useful instrument. The question is very often asked as to whether

Dancing

Is a healthful exercise. It may be answered, yes or no according to conditions. If persons did not allow themselves to carry it to excess; but where is moderation to be found in dancing? Waltzers generally continue on the floor until they are drenched with perspiration, (be it never so cold) and then a glass of ice-water or the open corridor is sought. The effects of this become manifest in the form of colds, pneumonia, etc.; but if the subjects are robust, the detriment will not, as a general rule, be lasting. Besides this accidental difficulty, there are others and more constant ones. The muscular exhaustion following all night dancing may last for days, and the inhalation of irritating dust may never be gotten rid of at all.

The injurious effects of dust are never the direct result of exercise, but the constant result of this kind of exercise. It is impossible to separate dancing in-doors from the inhalation of dust. If our eyes were sufficiently strong to detect the small particles which are continually floating around in the atmosphere of our dwellings, we would be amazed at the amount of such matter we breathe. Our style of laying carpets permanently on the floors converts them very soon into receptacles for dust, from which the air of the room is impregnated by the slightest commotion. If the simple act of walking across the floor is enough to cause these particles to rise, what may be expected from a company in the act of dancing? A dense cloud of dust is the result; but in the gloom of artificial light it is perfectly invisible, and beyond the appreciation of the other senses, unless, perhaps, some slight cough is excited in a delicate female. Dancing halls are without carpets, but abound in dust nevertheless. A well waxed floor has less than an unwaxed one, but with all kinds, the ill effects of dust is a great argument against the propriety of dancing. Delicate women and girls who suffer from natural weakness of the respiratory organs should never attempt it; for in so doing these matters would penetrate the alveoli of their lungs to remain permanently, and cause the initial step to consumption.

The next important feature of dancing is the muscular exhaustion it produces. Perhaps this is the most hurtful of all if we only understood it fully. In the professional opera-dancer, carried on night after night, and in greater moderation, it assumes more the character of training, and is beneficial to health rather than otherwise; but for an individual who is engaged in the ordinary occupations of life to dance vigorously all night long, at intervals of a week or two, I can see nothing to result from it but detriment. It is a species of over-training or perverted training, and ruins all those who follow it up. It is not claimed that consumption has any special spite against dancers, but it never attacks an individual until the normal tone of health is lost, and weakness has taken the place of vigor—dancing is the road to this condition. The well-known fact that prize-fighters and men of that class are short-lived, in spite of at one time having represented physical perfection, may be cited in evidence of the incompatibility of irregularity and health. The champions of the prize-ring undergo training for several months, but after the fight, relax into the worst forms of excess and debauchery. Catching cold from being over-heated while dancing, although an indirect evil of this mode of exercise, is, by that, a factor of no less weight in the etiology of consumption.

Walking

Has been universally advised for persons of weak constitutions, and there is no question that where it is followed up from day to day, it is a very healthful method of exercise, but, like other things there is a limit to its usefulness, which does not seem to be generally appreciated. That the inferior extremities are designed by nature for locomotion is very evident, but it is also evident that they are not intended to rival the steamboat or locomotive. Of late there seems to have been a mania among some people for performing wonderful feats of walking. Since Weston first inaugurated the profession in this country, many walkers have entered the field, and it has not been confined to the stronger sex; for but a few weeks ago, Miss Von Hillern gave an exhibition of her power in this direction in Cincinnati. This excess of action in the female is scarcely worse than in the male; in either sex the powers of the system are greatly abused.

It is said that Miss Von Hillern is strictly temperate in her habits, and boasts of her system of physical culture; she forgets that her habit of occasionally walking a hundred miles a day is anything but temperate. Professional walkers must eventually share the same fate as professional prize-fighters, and the length of their lifetime will only depend on the vigor with which they ply their profession. That persons predisposed to consumption should derive anything but injury from such rigid exercise is beyond my conception; and it is to be hoped that such a system of physical culture will never become general.

Fencing and Sparring

May be looked upon as affording good satisfaction as methods of general exercise, being practiced in moderation and affording great pleasure to many. The latter is especially beneficial, since most parts of the body are exercised uniformily, a fact which does not exist in fencing.

Bowling

Is very popular, but the stooping position and the fact that it is generally carried on within doors, may be urged as objections.

Base-Ball Playing.

There is no better exercise for males than that afforded by this popular game. It seems that the proper conditions are all supplied and the possibility of excess withheld. The individual, if not too weak, may engage in this game with profit. Much advantage has been claimed for the instrument known as

The Health Lift,

but after reflecting on the subject, I have come to the conclusion that its claims are, in the main, groundless, and its use, in some respects, unsafe. The fact that it is in-door exercise, and brings only a part of the muscular system into action, with a liability to produce apoplexy, hernia, etc., is quite enough to bring it into disfavor with the knowing ones. The instrument was the subject of a discussion lately in the Philadelphia County Medical Society, in which Dr. Benjamin Lee condemned its use as being neither rational, scientific, nor safe. The Doctor argued further that its vaunted merit of "a maximum of exercise in a minimum of time" (requiring only ten minutes a day), was a delusion; and stated that: "Exercise, in order to produce beneficial effects, must extend over a considerable length of time each day, and must be so moderate in character that such continuance shall not render it exhausting."*

Probably of all the modes of bodily exercise heretofore mentioned, there is none so satisfactory and so applicable to both sexes as

Rowing.

Not only are the muscles of the general system brought into action, but likewise the muscles of inspiration. I can think of nothing in which the erector muscles of the back are so effectively exercised. The practiced oarsman sitting upon his sliding seat, first flexes his lower limbs, then his body, while his arms are fully extended in front of his body. The oar is dipped and immediately the limbs are extended, then the body and finally the arms are flexed, completing the stroke. The moment before the oar leaves the water, the shoulders are thrown back affording an opportunity for full expansion of the chest. Compare this condition with that of walking, where the lower limbs are in vigorous operation, the muscles of the trunk merely maintaining the erect posture, and the arms swinging loosely at the side; or waltzing, where the muscles of the arms and body are fixed, and those of the limbs undergoing violent exercise.

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* Popular Science Monthly, Vol. XIII. Page 254.

In the foregoing pages mention was made of the unequal muscular tension between the flexors and extensors; the latter being weaker and having a tendency to give way to the former, causing, in a great measure, the faulty carriage of the body in youth. It seems to me that no kind of exercise is so well calculated to overcome this difficulty as that of rowing. But I must not be understood as advising this kind of exercise to the extent to which it is carried by aquatic clubs; for here the effects of over-training are often observed in robust individuals, without speaking of the ordinary class. A reasonable time can be employed in such exercise and without exhaustion, so long as the number of strokes to the minute does not exceed fifteen or twenty. Moreover, it seems natural that this kind of exercise, being rhythmical, should favor the respiratory act more than other kinds.

The exercise for delicate females which has given most satisfaction in the hands of Dr. E. Smith is

Rope Skipping.

He says: "In reference to women, we attach great importance to the practice of skipping, and direct that the rope be thrown from before backwards, and that a considerable amount of exertion be made during the ten or fifteen minutes practice at one time." "But, he adds, that the conventional habits of society are greatly against the adoption of the method."

Deep Voluntary Inspiration

Has been spoken of by Dr. Smith and M. Piorry as being more efficacious still in producing expansion of the chest, and even absorption of unhealthy deposits. The importance of this method cannot be too strongly emphasized; but as it requires considerable effort to practice it, there is a probability that it will never become very popular.

In order to fortify the opinions expressed above, I have collected a list of 67 occupations showing the relative occurrence of phthisis pulmonalis in each.

In using this table, the influence of physical exercise will have to be weighed against the other conditions, pure air, good food, etc., as no two instances depend upon factors of a strictly identical nature.

The table comprises the result of an examination of 334,321 recruits for the U. S. Army, (giving the ratio per 1,000 of those rejected), and is taken from the report of the Provost-Marshall-General's Bureau.

Phthisis pulmonalis in persons of various occupations, showing the ratio per 1,000 individuals:

Editors	68.4	Clerks	22.2
Dentists	55.8	Watchmen	21.8
Architects	43.6	Inn Keepers	21.4
Physicians	39.6	Tinsmiths	20.4
Telegraph Operators	33.9	Porters	19.9
Public Officers	33.1	Hatters	19.5
Tailors	31.9	Carriage makers	19.2
Teachers	31.3	Paper makers	18.9
Agents	31.1	Grocers	18.
Druggists	30.5	Plasterers	17.7
Merchants	30.	Engineers	17.3
Lawyers	30.	Gunsmiths	17.1
Peddlers	27.9	Harness makers	16.7
Sail makers	27.1	Book-binders	16.6
Cabinet makers	25.	Printers	16.1
Jewelers	24.5	Painters	15.9
Tobacconists	23.9	Shoemakers	15.6
Clergymen	23.8	Stone cutters	15.1
Railroad men	23.6	Students	15.

Millers	14.7	Fishermen	7.9
Photographers	14.	Firemen	7.7
Tanners	13.9	Blacksmiths	7.
Mechanics	13.2	Factory hands	6,4
Machinists	12.8	Laborers	6.2
Hostlers	12.8	Sailors	5.2
Brokers	12.6	Ironworkers	4.7
Manufacturers	12.4	Brickmakers	4.6
Lumbermen	11.2	Plumbers	4.4
Carpenters	11.2	Distillers	4.3
Upholsterers	10.9	Cooks	3.8
Masons	10.6	Boatmen	3.8
Farmers	9.8	Miners	2.9
Musicians	9.6	Soldiers	2.
Servants	9.2		

According to this, editors suffer from phthisis more and soldiers less than any other class. Air and exercise as causes will probably be confounded here; but the lack of general exercise and faulty position of the body necessitated by continual writing, in the editor may be well contrasted with the regulation of drilling and the erect carriage of the soldier. The disease among physicians is rather to be attributed to irregularity of exercise than lack of exercise. Peddlers live mostly in the open air, and have plenty of exercise in the way of walking, yet nearly 28 in 1,000 have consumption. The apparent cause is atrophy of the inspiratory muscles. The high per centage of the disease among porters may be attributed to the same cause.

On the other hand, with factory hands, where the air is always impure, and laborers, who are often supposed to receive improper food, the disease does not flourish at all. It is not reasonable to suppose that exercise is useless in these cases.

I will not attempt to solve the problem relating to miners more than to say that if these small figures are alike applicable to other countries, there are more factors entering into the case than air, exercise or food.

I cannot help mentioning the fact that boatmen, as a class, are so free from consumption. This suggests the idea that malarial districts being the scene of their actions, their immunity to consumption may depend, to some extent, upon the presence of malaria; while, on the other hand, I am disposed to lay a good deal of stress on the fact that they are subjected to almost continual out-door exercise.

The immunity which sailors enjoy, may be attributed in great part to the exercise of hoisting sails and rowing, which, I am inclined to believe, has a special action towards favoring the expansion of the chest.

In conclusion, it may be said that physical exercise is a powerful instrument in the prevention of consumption; and acts generally in raising the tone of the system, and specially in assisting respiration. It cannot be looked upon as a general cause in the production of the disease even though it be used to excess. Cases of exercise carried so far as to exhaust the system are so rare that the mischief produced in this way is comparatively trifling, though it must be admitted that, in so general a custom as dancing, much harm would result if this life of debauch were continued.

In occupations where physical exercise is not a necessity, consumption is much more common; and often occurs, apparently, from this cause alone, since the other conditions are most unfavorable to it.

The fact that silence is so prolific of consumption must be attributed in most part to the lack of exercise necessary to speech; but there may be some who hold that the mere interchange of ideas among the prisoners in the case cited, had a weight in the problem, and is entitled to its share of credit. On this point I am silent.

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Art. 4. Anasarca.

By H. S. WAMSLEY, M. D., Byers Station, Ohio.

Mr. B——, aged 52, called at my office, May 20th, 1878. He stated that for three days prior to his call, that he had an oppression of breathing, and felt as though he had a heavy weight about the epigastric region. His bowels were constipated, tongue was coated with a heavy, light brown fur, his pulse 80 to the minute, temperature 101.5°. He stated that whenever he could have an evacuation or pass flatus he would be at ease for some time. I found some resonance on percussion, and diagnosed the case as an accumulation of gas, in the intestines, consequently my treatment was directed accordingly, but to no purpose except to unload the bowels of a quantity of fæcal matter which had accumulated. On the 22nd I was called to visit the patient at his residence, found him slighly œdematous, tongue still coated, pulse 84, temperature 102°. Still complained about the same as when at my office. My diagnosis was still the same, and the treatment was directed to the same purpose. Was sent for on 23rd, but was engaged so I could not attend to the call, but sent Dr. Tedrow who saw the case and diagnosed as I had previously done, and he continued the carminative treatment along with cathartics, but to no purpose. On the 26th Dr. T——, requested me to see the patient with him. I did so, at 6 o'clock p. m., at that time the patients abdomen was greatly distended and by a close examination I concluded that the accumulation was of a liquid instead of a gaseous nature. And upon this diagnosis we based our treatment, giving cathartics and diuretics. Up to this time the patient's appetite was good and his strength had failed but little, the temperature and pulse remaining the same as when I last saw the patient.

On 27th at 9 o'clock, a. m. I again saw the patient with Dr. T., found the abdomen greatly enlarged, tongue with a heavy light brown fur, pulse 120., temperature 101.°, and for the first time the feet and legs were swollen and pitted on pressure together with ecchymosis. The appetite had never failed, bowels had responded to the cathartic, but urine only about normal in quantity. I proposed paracentesis abdominis and at 9:30, a. m., operated. Drew off 3 gallons and 1 quart of liquid leaving in a considerable quantity. The patient became more quiet, took some nourishment but began to sink at 3, p. m., and died at 6:30, p. m.

Now, the only query in my mind is what caused the sudden accumulation of liquid. Mr. B——, had been in good health for some time and had had no sickness except rheumatism some five years ago, which effected the knee, ankle, elbow and wrist joints, but at this time there appeared to be no rheumatic symptoms and no heart complications. Mr. B——, was a small man, thin and delicate. I should like to have the opinion of some experienced practitioner on this case.

[Dr. Wamsley should have made a post mortem examination.—ED.]

Art. 5. — Thrombosis and Embolism Standing as a Causative Relation to Partial Cerebral Anæmia, Paralysis, etc.

Read Before the "Highland County Medical Society,

By R. C. Russ, M. D., Hillsboro, Ohio.

Mr. President and Gentlemen of the "Highland County Medical Society:"—Being appointed as one of your essayists of to-day's meeting, I have selected the above topic for your consideration, not proposing however to offer anything very new in those intricate cerebral diseases; hoping however it may call out a full investigation and discussion by the members of this society.

Thrombosis may be defined to be that condition in which a blood-vessel undergoes a narrowing of its caliber by a morbid condition of its internal walls favoring a fibrinous clot and thereby obstructing the blood current.

Embolism, upon the other hand, may be defined to be a closure of an artery by a clot that is formed in some other part of the body and is transported by a current of blood thereby obstructing a blood-vessel.

At a very early period of cerebral thrombosis there is marked difficulty of speech there may be a loss of coördinating the muscles of speech and not depending entirely upon the paralysis of the parts used in phonation. The labial and lingual letters are generally enunciated with great difficulty. The gutturals in the early stage are generally enunciated with less difficulty. And at a still further advanced state of cerebral thrombosis; the loss of language to express ideas is almost entirely complete. Although words may be supplied he very soon forgets them again, and as the case progresses the cerebral thrombosis by gradually obstructing the artery leads to anæmia of the brain that the artery supplies, and as the next result (as a rule) paralysis of the opposite side of the body.

Pathologically while the thrombosis is forming there is not only innutrition of the part that is supplied by the occluded blood-vessel, but there is hyperemia of the brain anterior to the obstructed blood vessel. During the first stage of cerebral thrombosis indeed, recovery may take place (but rarely), by establishing a collateral circulation; but before this process can be brought about the anemic portion of brain not unfrequently undergoes softening.

The questions which I further invite your attention briefly is the morbid anatomy of the diseased blood-vessel and its clot. Endarteritis and atheromatous degeneration are generally the pathological condition of the blood-vessels. The atheroma of the blood-vessel, by reason of which its elasticity is diminished and the inner coat roughened favoring the deposition of the fibrin and the white and red corpuscles of the blood; thereby obstructing the artery.

In passing under review briefly the normal anatomy of the circulation of the brain; it must be observed that the obstruction of the transverse arteries (designated communicating arteries in works on anatomy) by thrombus must not only lead to anemia but subsequent softening of the pons varolii.

But if the internal carotid only is obstructed the circulation is carried on through the circle of Willis by a supply of blood through the vertebrals. The basilar artery might also be occluded at any limited region between a pair of the transverse arteries and the circulation is kept up by the carotids on the one side and the vertebrals on the other.

I shall now direct attention to the latter part of the subject, emboli. The most common cause of emboli is indubitably due to acute articular rheumatism, which by causing endocarditis leads to the formation not unfrequently to emboli on the valves of the heart, which are detached and transported by the blood-current. Any disease that produces a continued high temperature of the body such as puerperal fever, or typhoid fever, may act as a predisposing cause and favor the formation of emboli. But why is the emboli more likely to obstruct the left middle cerebral artery; than the right? It must be owing to the fact, that the left common carotid is given off from the arch of the thoracic aorta and passes vertically up the neck in a straight line until it bifurcates at the superior border of the thyroid cartilage. The internal carotid after entering the carotid canal assumes then a more sinuous course, the middle cerebral being the continuation of the of internal carotid. While the right carotid originates from the arteria innominata. Aneurism of the aorta or one of the large blood-vessels is also a cause of emboli, a formation of the clot detached and carried by the blood-current not unfrequently lodges in one of the arteries of the brain; occluding it and producing partial anemia and frequently (but not invariably) paralysis of one half of the body.

The differential diagnosis in cerebral thrombosis may be arrived at by the law of exclusion. From hyperemia of the brain by its more gradual development; it generally occurs in persons over forty years of age; from cerebral hemorrhage by its gradual development; and from emboli, by its slow progress; and also from encephalitis by the absence of febrile excitement.

The previous history of the patient should be obtained if possible and noted accurately; the physical examination of the heart in all suspected of cerebral disease should be made, to ascertain if the patient has had endocarditis or valvular insufficiency or any other morbid condition of the heart or its valves. The treatment of cerebral thrombosis and embolism by any medicinal agent with the view of absorbing the clot, is certainly nugatory There are perhaps no other diseases, which will require more accurate discrimination in the application of medicinal agents than thrombosis and embolism. The heart should always be carefully examined and the cardiac impulse (if abnormal) equalized as far as is possible by digitalis; if in the early period of thrombosis or emboli, and during the formation of the collateral circulation nature sometimes overdoes the work by producing fluxionary hyperæmia; during this stage bromide of potassium should be given with the view of producing contraction of the cerebral blood-vessels. But if the collateral circulation has been established; nutrients and alcoholic stimulants should be given with the view of inviting arterial blood to the already impoverished portion of anemic brain-tissue.

To improve the nervous system which has been suffering from partial paralysis, ext. nux. vomica with phosphide of zinc or strychnia is indicated.

There is no other one, medicinal agent however paradoxical as it may seem, equal to the liquor potassa arsenite to cause a gradual recuperation of the system after having once suffered from partial cerebral anemia. Although this remedy is potent; it never should be given in large doses as is frequently recommended. It never should be prescribed in sufficient doses to produce gastric irritation or œdema of the face and eyelids; this is its toxicological effect and not its medicinal. I generally prescribe one drop, gradually increase to but not exceed eight drops in milk three times a day after meals.

For the regulation of the bowels tonic laxatives are indicated, bisulphate of potassa and bicarbonate of soda a drachm each taken in the form of effervescing draught acts admirably in patients with delicate stomachs. The hygienic laws should be strictly enforced throughout the progress of the disease.

Art. 6.—Extracts from the Aphorisms of Ahmed Ebu al Zamakh.

Ahmed Ebu al Zamakh, at present the most distinguished physician in Arabia, was born July 6, 1840, at Mocha on the Straits of Bab-el-mau-deb. When eighteen years of age he was sent to Edinburg by the East India Company. While there he attended a few medical lectures, and on his return home after an absence of three years, concluded to practice medicine in his native town. His fame ere long spread through the province of Yemen, even as far south as the towns along the coast of the sea of Aden. In the year 1873, *Ahmed Ebu al Zamakh* published at Aden, in the Arabic language, a curious book of Aphorisms. The first chapter of the book is translated for the benefit of the LANCET AND OBSERVER'S readers. It will be readily perceived that Arabia is not altogether free from medical talent, and that our author, though not himself a graduate, gives advice to his other medical brothers. M.

" In the name of the Holy Prophet! Listen O! physicians of Yemen to the voice of your master the learned Ahmed Ebu al Zamakh.

Attend ye unto the sickness and affliction of the poorest and meanest of your race, for they may be able to serve you at some future time; even such an insignificant thing as a spider rendered our Holy Prophet a service by stretching its web across the cave at Mount Thur, thus saving his life from the enemies who sought it. How much more powerful is a beggar than a spider.

Study well your books, for the physician who exposes the brazen cheek of mediocrity to the kiss of public favor is apt, sooner or later, to have his jaws slapped.

Be diligent, for, sweeter than the rose of Ghizan is the perfume of a life well spent.

Be not discouraged, for the physician who in early life pulls at the dug of adversity, will in his old age suck the hind teat of prosperity, until weaned by death.

Remember all you see; for experience, though sometimes deceitful as a Koreish maiden, is the mother of all wisdom. A physician who only uses his eyes to read printed books, and closes his orbs to the ever open book of nature, is apt to make a poor practitioner.

Die in the faith, for the young physician starting out in practice sees success as a mirage, and often dies of thirst in the desert of despair.

Be honest. He who is not honorable in his practice, may he fall like the sand blind dromedary into the wayside water pit.

Clearer than the crystal waters of Al Cawthar[1] is the conscience of a pure minded physician.

Softer than the moonlight is the gratitude of a sick patient, and just about as evanescent.

May he who dealeth in quack nostrums and salves be buried with his face away from Mecca.

Beware of the physician who boasts of his cures, for his patients have gone with Azrael[2] and are unable to speak for themselves.

The man who produces an abortion, sups in the company of Eblis.[3]

Be gentle with pregnant women; for more beautiful than the Vales of Cashmere are the eyes of a safely delivered female.

If a sick man be cold he needeth the ministration of warmth; if he be warm so let coldness be ministered to him—a cooling drink for the parched lip of fever, and warm drinks inwardly for a chilly coldness.

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[1] One of the rivers of Paradise. [2] The angel of death. [3] The devil.

Sacred as the Caaba, be the honor of thy patient's wives, but consider his concubine to be even as thine own.

More fragrant than the nutmeg of Yemen, is the spicy incense of a patient's flattery.

Happy is the physician who dieth poor after having done many good works, for he shall dwell at Al Jannat [1] near unto the Tuba, [2] and shall eat of dates, grapes and pomegranates, and forever be caressed by the dark eyed houris.

As women with sucking child fast not during Ramadan, [3] so is it not well for a physician to travel on an empty belly, for he needs strength to avoid the plague and the pestilence.

Rhazes was a wise physician, but there are practitioners at Medina to-day, who deem themselves wiser. Be ye not conceited in like manner.

In prescribing for a patient use your own judgment; to council with other physicians and old women who all have their own opinions is to waste time, and perhaps the patient may die meanwhile from your over talking.

Grief over a patient's death is not commendable; for if God so wills, it is not your business.

Give no betal root or opium to small children, for it is apt to cause turgesence of the brain and destroy the moisture of the organ.

Honey is good for young girls whose hearts are disordered, as it loosens the phlegm about the lung.

If you wish to be still more wise, O! physicians of Yemen, hearken now to the second book of wisdom opened unto you."

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[1] Paradise. [2] The tree of Happiness. [3] A Mahometan fast month.

* * *

Art. 7.—Internal Use of Water in Systemic Fever.

A careful inquiry as to our use of water in diseased conditions of the human body seems to me to be a subject worthy of attentive consideration. We all know that thirst is one of the most imperious affections of the body in a state of health. Absolute privation from water generally destroys human life in three or four days, while numerous authenticated cases show that want of food can be endured much longer. Looking at the constitution of the human body as given by the best authority we find that water is present in the proportion of 70 per cent. of the entire mass; that its presence is absolutely necessary to the circulation of the blood and the continuance of the functions of secretion and excretion; that it is largely excreted by the skin, the lungs and the kidneys; and that no source of internal supply is possible. Persons starving from want of food can live upon their own tissues to a certain extent, drawing some supply from internal sources, but the supply of water must come from without. It follows, of course, that water must form a large proportion of the ingesta whether a person is sick or in health. Indeed in sickness, when we know that destructive metamorphosis is especially active, more frequent supplies of water would seem to be necessary for use as an universal solvent and to maintain the fluidity of the blood at the proper point.

Just here the question arises—what kinds of fluids should be used and at what temperature should they be given? Medical opinion varies greatly as to the proper answers to these questions. Some physicians direct milk, beef tea, or barley water to be given continuously as the best combinations of food and drink; some allow large draughts of ice-cold water, and some are inclined to use various warm or tepid preparations with a view to the special effects produced by the temperature of the drinks allowed. To make an inflexible rule that will apply in all diseases is certainly, impossible, but it is our purpose to set forth here a few considerations that induce us to use fluids, whenever possible, at or above the temperature of the human body at least in all cases of systemic fever.

One of the first functions affected in cases of systemic fever is that of the stomach. Appetite is lost; digestion is poor; the tongue in sympathy with the stomach becomes coated; absorption into the system through the stomach walls grows difficult and easily impeded; and the throat becomes parched and dry. Generally there is more or less stagnation of circulation through the stomach and an irritable condition is present that results in vomiting on slight provocation. Morbid thirst exists almost constantly and the poor sufferer remembering the grateful sensation of cool water in health, is almost irresistibly impelled to try it in his present condition. He does so, oftentimes in spite of prohibitions from friends or medical attendant, but the curse of Tantalus has affected the water, it does not slake his morbid thirst, he cries for more, more, more, until the stomach rebels under the unabsorbed leaden weight and vomiting disembarrasses the suffering organ of its unwieldy load. We claim that these are the proper cases for the use of a warm or tepid infusion, combining food and drink if you choose, but made palatable to the patient, if possible, as is the German practice with their "*Brust Thee*," and the French practice with their lemon and barley *tisaune*, and the universal resort of every "wise woman" in the country who guides her practice by *frequently observed facts* rather than by delusive theories. The best clinical evidence undoubtedly supports this practice and any unprejudiced observer having no pet theory to confirm, will surely bear me out in this assertion.

Now let us examine some of the facts that have a bearing on this subject so that if possible, we may be able to give a reason for the faith that is in us.

1. And first let us state an admitted fact as demonstrated by Dr. Beaumont on the stomach of Alexis St. Martin. While the latter was in perfect health he took about one pint of ice-water. Before taking it, the temperature of his stomach was nearly 100° F.—just after taking it the temperature was 75° F. and it was half an hour with all the reactionary power belonging to perfect health before his stomach regained its normal temperature. Of course the blood was driven away from the stomach temporarily, secretion in itself and the neighboring glands delayed or obstructed by the shock, and the free circulation of the blood prohibited for a time. Owing to St. Martin's vigorous health, the reaction was comparatively speedy, effectual, and no danger re-

sulted. Is it reasonable to suppose reaction will come on as easily or quickly in a sick man, as in a well one? Is it unreasonable to think that it will be longer delayed, that the shock will be greater, and the reaction when it comes will be less effectual?

2. Again—if a person in good health suddenly receives a *douche* of cold water on the naked body, every one can observe a sudden involuntary shrinking of all the tissues, a spasmodic contraction or gathering together of the whole frame. If this person is in good robust health, reaction comes on quickly, the whole body feels stimulated by the shock, and a healthful tonic effect results. Suppose this experiment be tried on a sickly delicate person—which of us would not fear long delayed, imperfect reaction and serious if not fatal consequences as a final result. Is it reasonable to suppose that the circulation and the tissues around the stomach of a sick, exhausted, and nervous patient are not badly affected by repeated draughts and shocks of cold water? Is it unreasonable to suppose that very bad results might ensue where reaction took place ineffectually?

3. Again—if a laborer in the harvest field, after working hard on a hot day, drinks copiously of cold water, he is liable to severe damage from the inconsiderate act, perhaps even forfeits his life. If such a man in good general health and only temporarily exhausted by hard labor in a hot sun, receives signal damage, is it not reasonable to suppose that the exhausted sick man, heated as to his stomach, abnormally sensitive as to his nervous system, and predisposed to congestive tendencies as to his circulation, might be damaged by copious draughts of cold water?

4. Again—if the poor, miserable specimens of humanity, sometimes recovered in a starving condition from shipwrecks at sea cannot take a mouthful of cold water without danger, but are recovered by cautiously feeding them teaspoonfuls of warm soup or warm milk, is it reasonable to suppose that many cases of systemic fever which are frequently brought into a very similar condition would be benefitted by unrestricted supplies of cold water?

5. Again—A special argument comes from our location in a malarious district. If we have a patient suffering from malarial fever, which one of us would allow him to go and work or play in cold water and get his hands or his feet thoroughly chilled. We know that healthy reaction would not take place and of course we would fear congestion of some internal organ and an exaggeration

of the fever. Shall we then allow such a malarious patient to drink *ad libitum* of cold water and chill his stomach after Beaumont has told us the temperature may fall from 100° F. to 65° F.

These are some of the arguments that prove conclusively to my mind the baneful effects of cold water taken by a patient sick with systemic fever. They prove that a sudden chilling of the stomach takes place and that reaction may be delayed for shorter or longer periods according to the vitaiity of the patient. They prove that the cold douche to the stomach gathers up in a spasmodic contraction all the neighboring tissues and organs thus obstructing and retarding the processes of secretion and excretion especially from that great depurating organ the liver. They prove that congestive tendencies may thus be suggested or confirmed and become an added source of danger to the patient.

On the other hand the use of warm drinks, or warm food, somewhere about and above the temperature of the sick body can do none of this damage; no shock, no delay or obstruction of secretion, no congestion can spring from their use, no probability of a stomach overlooked with unabsorbed water. If vomiting does occur after their use (and we assert that it is much less frequent than after drinking cold water). the presence of bile in the ejected matters will show that the ducts of excretion are open and unobstructed. The fever parched throat, mistaken by the patient for the sense of intense thirst when really it is only a morbid condition, is more soothed by the tepid drinks than by the cold, absorption can go on through the walls of the stomach so long as the necessities of the circulation demand new supplies of fluid. Inclination to drink is not so urgent and the special relaxing effect of the warm water, or tea, or food undoubtedly hastens recovery of the patient.

Our clinical experience in that ugly disease — yellow fever where irritability of the stomach is so much to be feared, first drew our attention strongly to this subject. There we found that cold drinks did not slake the burning thirst; that warm drinks were much better; that cold drinks would have been used in immoderate quantities; that warm drinks were not; that cold drinks soon brought on the horrible vomiting; while warm drinks did not; in short that if we allowed plenty of cold water our patient would die, while warm drinks combined with the blandest food in small quantities was a comparatively safe practice. We claim a similar experience in the intermittent and remittent fever of our locality, in dysentery and in continued fever. The East Indians have proved that in cholera nothing suits so well as warm milk.

We do not pretend to emulate Dr. Sangrado in his celebrated practice of forcing his patients to swallow warm water by the gallon—we rather allow the sick man to judge to a certain extent how much water he needs, stipulating only that what he drinks shall not be cold. We allow him, if he positively demands it, to suck a piece of ice tied up in a corner of a towel or to swab out his mouth with a wet towel, but we aim to avoid anything that will chill the stomach believing that it certainly retards recovery.

We invite discussion on this subject as the best means of eliciting the opinions of all our members and arriving at some definite individual judgment on the question—shall warm or cold drinks be allowed a patient having systemic fever? GOSIFO.

Correspondence.

Editor of the Lancet and Observer:

My attention was recently called to a very singular classification in the last report of the meeting of the Board of Directors of Longview Asylum published in the daily papers of this city. Perhaps it would not be uninteresting to the readers of the LANCET AND OBSERVER, to review the classification eminating no doubt from the present Superintendant. Before examining *seriatim* the proposed classification, I wish to make some few statements bearing directly upon this subject. There are very few *Alienists* at the present time who insist upon an absolute classification, such as prescribed in the recent report. It is not considered important, and cannot certainly be carried out in an over crowded asylum such as Longview, built for four-hundred patients, containing as it now does, over six-hundred. While classification to a certain extent, is very desirable, an absolute classification is unnecessary, that is, one that shall be carried out strenuously with no exceptions.

Classification is a subject of much discussion, and many of our best superintendents, *men of long experience*, claim and show that the presence of the harmless, obedient cases, act as a check to the more violent, and consequently insist upon the importance and necessity in the proper treatment of the insane, to allow them to mingle and associate together. For a superintendent to say and publish to the world that such a ward shall be occupied exclusively by convalescent cases and another by harmless incurables, is to say the least, absurd and but the natural outgrowth of inexperience. In examining the classification under consideration one is naturally and forcibly impressed with the peculiar arrangement. For example, the 10th wards male and female, are set apart for the chronic harmless cases. These are the smallest wards in the asylum, will not accommodute more than thirty patients each, by crowding. When you consider the fact that about 90 per cent of the inmates are chronic and in a great measure incurable, and out of that number 60 per cent are harmless, or as nearly so as insane people can be, you will no doubt as I did, wonder how they were to be accommodated in so small a compass. To carry out such an arrangement would necessitate the sleeping of two or three deep on the floor. We are told that the 8th wards male and female are to be the receiving wards, but there is no mention made of the class of patients to be retained in them, certainly not the harmless incurables, for they are provided for. The 7th wards male and female are to be occupied by working patients, from this we are to infer that patients occupying other wards throughout the building are to remain in idleness, certainly a very undesirable state of affairs. I believe if there is any one thing that contributes to the successful treatment of the insane it is giving them early and suitable employment, and yet, we are forced to the conclusion that the convalescent, those who most need healthful employment are permitted to remain in idleness, for we are told that all such are to be provided for separately. The 5th wards male and female are to be devoted to the care of general paralytics and filthy cases. There can certainly be no objection to such an arrangement, it is very desirable to separate this class from the main body of patients. They constitute a large proportion of the cases in every asylum and I doubt very much whether they could be accommodated in two wards of an asylum containing nearly seven hundred patients. My own experience and observation would most certainly prompt me to say no. The 1st wards, male and female, are to be occupied by convalescent cases. (There will I premise be no crowding in these). The 2nd wards male and female by recent and dangerous cases and the 4th wards male and female, by cases under *special treatment.* It is a question yet *subjudice* whether special provisions should be made for the convalescent insane, many oppose separating, or placing them in wards distinct from other parts of the building. It is a fact worthy of note that convalescent patients object oftentimes to being transferred from one ward to another, they prefer remaining in the ward with their old associates, rather than form new relations and new acquaintances. Every attendant of experience and worth will bear testimony to this. The feelings of the patient should always be consulted before making any such change. It is I believe customary in all well regulated asylums, to provide for the very violent and refractory patients on the first or ground floor. There are perhaps several reasons for this, one is and certainly a very important one, that in cases of emergency they are in close proximity to the office where assistance is usually first sought after. Another is, where patients succeed in escaping either by windows or doors, they do not injure themselves, on the contrary if permitted to occupy wards on the second or third floors such occurrences are very apt to be followed by serious consequences. There is still another reason. The wards on the first or ground floor are easy of access. Violent cases can be removed to and from them, without the necessity of dragging or forcing them up and down two or three flight of stairs. Such patients are not infrequently very stubborn, and disposed to resist every thing that is being done for them, hence the importance of adopting means to ends, contrary to all reason and custom he has designated the 2nd wards on the third floor for the safe keeping of such cases. Lastly, we are informed that the 4th wards male and female are for those under special treatment. I am not certain that I comprehend this particular division of the classification. It is customary to place recent and violent cases under special treatment, but we are told that all such are to be provided for in the 2nd wards, and hence placed beyond treatment. It is barely possible that these wards are for those obscure cases where the *fons et origo* of insanity cannot be traced directly to the brain but rather to some other organ or organs of the body, for example the *uterus.* This would of course exclude the males from the benefit of such treatment. Other criticisms might be made, but enough has already been said to expose the utter fallacy of such a classification. W. H. D.

LONDON, ENGLAND, May 20, 1878.

To the Editor of the Lancet and Observer:

I thought that possibly some of your readers—who may be like myself just a little classical in their tastes—might be interested in a *part* of the inscription on the monument of Hugh Chamberlain, in Westminster Abbey, which I copied a day or two since. Too much honor can hardly be given to the inventor of that most important of obstetrical instruments—the forceps—which so often saves the mother without sacrificing the child; and so often saves the child without sacrificing the mother.

The portion I copied for your readers is as follows:

"Nullam ille medendi rationem non assecutus
Depelleridis tamer puerperarum periculis,
Et avertendis infantium morbis
Operam præcipue impendit;
Eaque multoties cavit.
Ne illustribus famileis eriperentur haeredes unici,
Ne patriæ charissimæ cives egregii,
Universis certe prodesse, quantum potuit,
Adesque, distracta in partes republica, voluit,
Cum iis, a quorum sententia discessit,
Amicitiam nihilominus senate coluit,
Artisque suæ praæsidia luben, communicavit."

Which a free translation with no attempt at elegance, I give below:

He practiced every department of the healing art; but he gave special attention to averting the dangers incident to childbirth, and warding off the diseases of infants.

Many times he so guarded against these dangers that only heirs were not snatched away from distinguished families, and illustrious citizens were preserved to their beloved country.

It was his wish to benefit all, as far as he was able, and at a time when the state was divided into parties, he sacredly discharged the duties of a friend towards those from whose opinions he differed, and willingly gave them the benefit of his professional skill.

The inscription further states that the monument was erected by the Duke of Buckingham in gratitude for his own life saved by Chamberlain "*in partu*" and afterwards preserved by his skill through dangerous illness, until he was brought to confirmed health. The date is 1728. Respectfully,

DOUGAN CLARK, M. D.

Sanitary Reports

FROM THE CINCINNATI HEALTH OFFICE.

Prepared by T. C. MINOR, M. D., Health Officer.

Condensed Death List for May, Classified.

Class 1.	Order.		Total
Zymotic.	1. Miasmatic	48	
	2. Enthetic		
	3. Dietic		48
Constitutional.	1. Diathetic	14	
	2. Tubercular	53	67
Local.	1. Nervous System	62	
	2. Circulatory System	12	
	3. Respiratory "	75	
	4. Digestive "	20	
	5. Urinary "	5	
	6. Generative "		
	7. Locomotory "		
	8. Integumentary "		174
Developmental.	1. Children	7	
	2. Women	1	
	3. Old Age	3	
	4. Nutrition	22	33
Violence.	1. Accident	14	
	2. Homicide		
	3. Suicide	5	19
	Total.		341
	Still Born.		31

CAUSE OF DEATH, AS REGISTERED.

Abscess of Lung	2	Jaundice	1
Accident	14	Kidney, Disease of	2
Angina Pectoris	1	Kidney, Bright's Disease of	1
Apoplexy	4	Laryngitis	5
Asthma	5	Liver, Disease of	4
Ascites	1	Liver, Cirrhosis of	1
Bowels, Obstruction of	1	Lungs, Congestion of	4
Brain, Disease of	1	Lungs, Inflammation of	4
Brain, Congestion of	7	Marasmus	5
Brain, Inflammation of	3	Measles	1
Bronchitis	16	Meningitis	14
Cancrum Oris	1	Meningitis, Cerebro Spinal	5
Cancer	1	Nephritis	1
Cancer of Liver	2	Old Age	3
Cancer of Stomach	2	Paralysis	4
Cancer of Uterus	2	Peritonitis	2
Cholera, Sporadic	1	Pleurisy	3
Consumption	45	Pneumonia	35
Convulsions	26	Premature Birth	7
Croup	3	Pyæmia	2
Debility	3	Rheumatism	1
Diphtheria	10	Scrofula	1
Dropsy	5	Spinal Disease	1
Dysentery	3	Suicide	5
Enteritis	3	Tabes Mesenterica	2
Erysipelas	2	Tetanus	1
Exhaustion	6	Teething	1
Fever, Intermittent	1	Tumor of Brain	1
Fever, Scarlet	15	Ulcer	1
Fever, Typhoid	6	Ulcer of Bowels	1
Heart Disease	4	Ulcer of Stomach	1
Heart Disease, Valvular	5	Uræmia	1
Heart Disease, Organic	2	Uterus, Rupture of	1
Hemorrhage of Lungs	3	Varioloid	1
Hernia	1	Whooping Cough	1
Hydrocephalus	2		
Inanition	8	Total,	341

REGISTRATION OF DEATHS BY WARDS.

1st	Ward,	21	15th	Ward,	8
2d	"	11	16th	"	12
3d	"	21	17th	"	7
4th	"	17	18th	"	18
5th	"	18	19th	"	14
6th	"	12	20th	"	9
7th	"	16	21st	"	10
8th	"	13	22d	"	7
9th	"	10	23d	"	5
10th	"	13	24th	"	7
11th	"	16	25th	"	10
12th	"	6	Public Institutions		28
13th	"	17			
14th	"	15	Total,		341

AGE OF DECEDENTS.

Under 1 year of age,	95	40 to 50 years of age,	25
1 to 2 years of age,	36	50 to 60 “ “	22
2 to 5 “ “	29	60 to 70 “ “	16
5 to 10 “ “	18	70 to 80 “ “	8
10 to 15 “ “	16	80 to 90 “ “	3
15 to 20 “ “	11	90 to 100 “ “	1
20 to 30 “ “	30		
30 to 40 “ “	31	Total,	341

NATIVITY OF DECEDENTS.

Cincinnati	206	England	2
United States	50	Other Foreign	3
Germany	59		
Ireland	21	Total,	341

SEX.

Males	197
Females	144
Total,	341

COLOR.

Whites	313
Blacks	28
Total,	341

SOCIAL CONDITION.

Married	99	Widows	10
Single	226		
Widowers	6	Total,	341

REMARKS.

The month of May was remarkably healthy as compared with the same month for five years past. The principle zymotic diseases causing death, were Scarlatina, Diphtheria and Cerebro Spinal Meningitis. There was a decrease in the number of deaths from Diphtheria and Scarlatina, as compared with the previous month (April) and a slight increase in the death rate from Cerebro Spinal Meningitis.

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Proceedings of Societies.

AMERICAN MEDICAL ASSOCIATION.

TWENTY-NINTH ANNUAL MEETING,

Held in the city of Buffalo, June 4, 5, 6 *and* 7, 1878.

TUESDAY, JUNE 4TH.--FIRST DAY.

THE Association met in St. James' Hall, and was called to order at 11 a. m., June 4. 1878, by the President, Dr. T. G. RICHARDSON, of New Orleans, La.

Prayer was offered by Rev. L. Van Bokkelen, M. D.

The President invited Drs. S. D. Gross, of Philadelphia; Bowditch of Boston; N. S. Davis, of Chicago, and J. M. Toner, of Washington, to take seats upon the platform.

DR. THOMAS F. ROCHESTER, of Buffalo, Chairman of the Committee of Arrangements, then delivered the

ADDRESS OF WELCOME.

In the name of the citizens of Buffalo and of Erie County, he extended a most cordial welcome to their city, to their hospitality, and to all that was within their power to offer towards the reaching of three objects for which the Association assembled:

1. The general good and advancement of medicine;
2. The making personal acquaintance with each other;
3. The taking a little of what was so often prescribed—namely, wholesome recreation.

To that end a most cordial welcome was extended to visit the various public buildings in the city, the prison, the alms-house, the Niagara elevator, the hospitals, the Institution for the Instruction of the Deaf and Dumb, the Medical College with its museum and laboratory, the public parks—in short, the physicians of Buffalo, through Dr. Rochester, resolved themselves into a "committee of the whole," and placed themselves at the service of the American Medical Association.

The report of the Committee of Arrangements on

THE CREDENTIALS OF MEMBERS

was read by the Secretary of the Association, Dr. Atkinson, of Philadelphia. As the names were read it was seen that a large number of the States were represented.

CHARGES AND PROTESTS.

DR. P. J. DWYER presented charges against the Medical and Surgical Society of Grand Rapids, Michigan.

The Arkansas State Medical Society presented a protest against the admission of certain members from Hot Springs, Arkansas.

Also a protest against the acceptance of Dr. James M. Keller, of Arkansas, as a member of the Association.

DR. KELLER rose to a question of privilege, and made explanation to the effect that the man who made the protest against his (Dr. K.'s) acceptance by the Association was the man who had been expelled from the Arkansas State Medical Society upon charges preferred by himself (Dr. K).

The charges and protests were referred to the Judicial Council.

MEMBERS BY INVITATION.

DR. ROCHESTER made the following announcement of members by invitation: All the members of the Erie County Medical Society not now delegates or permanent members of the Association; Drs. George W. Stone, United States Marine Hospital Service; F. Lange, Kiel, Germany; and Edward Hutchinson, of Utica, N. Y.

FOR PERMANENT MEMBERS:

Drs. George I. Northrup, of Marquette, Mich., Stanford E. Chaille, of New Orleans, La., and L. G. Thacker, of Defiance, O.

The report was adopted.

TELEGRAM FROM DR. J. MARION SIMS.

The Secretary read the following telegram from DR. J. MARION SIMS, now in Paris:

"President American Medical Association—May your meeting be harmonious and contribute more than ever to the advancement of medicine. Truly sorry I cannot be with you."

PRESIDENT'S ADDRESS.

DR. JAMES P. WHITE, of Buffalo, Chairman of the Reception Committee, introduced the President, **DR. RICHARDSON**, who proceeded to deliver the annual address.

The vast benefits which the Association had wrought in uniting the interests of the profession in all the different sections of the country; the encouragement which it had given to a higher culture; the valuable contributions which it had made to some departments of medicine, and the dignified position which it had gained in the eyes of the whole nation, had been so often descanted upon by his predecessors, that it might seem somewhat trite and unprofitable to refer to them again; and yet there was one point which deserved to be brought to the attention of the Association anew, and that was

MEDICAL EDUCATION.

Although more than a generation had passed away since the first meeting of the Association in the city of New York, but few of the original members clustered around the venerable form of him whom we all delighted to honor as its projector and the ever-watchful guardian of its interests. The two most prominent objects in the minds of the earnest men who composed that assembly were the improvement of the system of medical education in the United States, and the elevation of the standard of requirement for the professsional degree. It was equally well known that, down to within a very few years past, all the numerous efforts in that direction seemed to accomplish no permanent good, and the philanthropic and enthusiastic reformers, with the exception of a few hopeful and unconquerable spirits, had come to consider the cause as almost wholly lost. Although the result had been so discouraging, yet the Association was to be congratulated upon the evidences, which were now developing, that its work had not been in vain. It was true that the method of mixed teaching practised by the schools more than half a century ago was generally followed; but it must be clear to all unprejudiced observers that there was a growing dissatisfaction with the imperfections of that method, and a disposition to adopt the only philosophic plan, known as the graded system, which prevailed throughout all the other civilized nations of the world. We had just found out that the plan which we formerly pursued of making war directly upon the medical colleges, endeavoring to compel them to conform their practices to our theories, or else surrender the prerogatives to which they had been so long accustomed, was altogether a mistake, and probably deserved the partial defeat which it encountered.

It was only by capturing the grand army of the profession throughout the country, from which the colleges derived their material and moral support, that we could reasonably hope to bring those institutions to terms. To that end there should be a more

THOROUGH ORGANIZATION

of State and County District Societies, and the President suggested that the Association adopt some uniform plan by which the sixty thousand physicians in the country might be encouraged to unite in district organizations, and through their representatives establish a living union with this, the central legislative body. When that was effected, no honest faculty would dare confer a diploma upon an unworthy candidate.

Leaving this subject, Dr. Richardson passed to the consideration of the question of

ORIGINAL INVESTIGATION.

In view of the very small amount of work that had been done in that direction in this country, it was suggested that it might be the duty of the Association to do something more than it had done to foster the spirit of investigation and discovery in those departments which related directly to medicine.

METHODS SUGGESTED.

Two methods of effecting that were suggested. One was to endeavor to concentrate the influence of the entire profession throughout the country upon the Federal Congress, with the view of convincing its members of the importance of scientific enterprises.

He was not prepared to propose a plan sufficiently elaborated to justify submitting it to the Association with the view of having it brought before the authorities at Washington. Yet it seemed to him that in the Army Medical Museum and Library the general government had, unintentionally no doubt, already founded a school, which, through the influences just indicated, might possibly be made the nucleus of a great national institute, in which original research in all the sciences upon which medicine more immediately drew could be conducted with the same wisdom and efficiency which characterized its present management.

The second method suggested was to incorporate the Association and then stimulate to original investigations by offering prizes.

The President then passed to the subject of

STATE MEDICINE.

The objects of State medicine were threefold:

1. The prevention or arrest by official measures of all diseases which are not in their nature strictly limited to the individual, but which, from external causes, or from their specific characters, had a tendency to spread throughout families, institutions, and communities, and which could not be otherwise controlled.

2. The qualification of men by suitable education for the duties involved not only in the practice of medicine, but also of public hygiene, the State not only directing the studies which they should follow, but determining by examination when they had reached the standard of acquirement necessary for the proper performance of their great trusts.

3. The enactment and enforcement by the State of such laws as would secure to every citizen the benefit of the services of the best professional experts in all questions of a medico-legal character.

With a view of arriving at desired results in that department, it was suggested that a committee of leading sanitarians be appointed to prepare a somewhat elaborate address to the profession and the public, setting forth the transcendent importance of the subject, presenting a summary of sanitary science, pointing out the best methods of studying and teaching the same, and demonstrating the great benefits to be derived therefrom by the individual and the community in general. Without attempting to portray the special features that should appear in such an address, Dr. Richardson took the liberty of saying that it should not omit to insist upon the great necessity of teaching the young not only the laws of health, but the elements of physiology, which were essential to a proper comprehension of the principles of hygiene.

It had been proposed not to await the neccessarily slow march of sanitary intelligence among the people, but to petition the Federal legislature at once to create a sanitary department in the general government, with an officer at its head who should be assisted in the performance of his duties by a

NATIONAL COUNCIL OF HEALTH,

composed of members from every State in the Union.

Dr. Richardson, however, believed there were but two great questions in State medicine which we could reasonably hope to have solved by Federal legislation. One concerned seaboard quarantine, and the other the pollution of water-courses. It was doubted by many eminent statesmen whether even those could be brought under Federal control; and yet the recent passage by Congress, of "an act to prevent the introduction of contagious and infectious diseases into the United States," encouraged us to hope that something might be expected from that quarter.

Whatever doubts there might be as to the extent of the authority possessed by the central government, there seemed to be no dispute that within the limits of each separate State resided a power which, with reference to all such matters, was practically supreme. It was, therefore, upon that power that the State medical societies should concentrate all their influence, professional and social, to effect the necessary legislation. They should employ their best endeavors to have

STATE BOARDS OF HEALTH

created where they did not at present exist, and they should by all means secure the right of nomination for appointments upon such boards. Whatever plan, however, might be advocated by societies, it should be borne in mind, in recommending legislation, that while it was true that a people ignorant of even the elements of hygiene could not be brought under sanitary legislation except by restraint, such restraint should be used with the greatest caution and moderation, and be sustained by an appeal to the common sense of those to whom it was applied. He therefore repeated with added emphasis the sentiment already expressed, that the hope of progress in State medicine was in the education of the people.

On motion made by DR. GROSS, the thanks of the Association were tendered to Dr. Richardson for his admirable, excellent, highly elaborate, and eloquent address.

On motion made by DR. WHITE and seconded by DR. GROSS, the President's address was referred to a committee of *five*, of which the President was chairman. The remainder of the committee consisted of Dr. Richardson's *four* immediate predecessors.

REPORTS OF DELEGATES.

DR. WILLIAM BRODIE, of Detroit, made a report as delegate to the Canadian Medical Association.

Special mention was made of a paper read by Dr. James Workman, of Toronto, on "Crime and Insanity," which was read in the general meeting, and, after a full discussion, led to the adoption of the following resolution:

"*Resolved*, That, in the opinion of this Association, it is desirable, in all criminal trials, when medical opinion suggests the possibility of mental unsoundness, the accused should be placed under the supervision of experts for a sufficient time to enable them to determine whether he or she was insane or not at the time the crime was committed."

DR. LEWIS A. SAYRE, of New York, made a brief verbal report as delegate to the British Medical Association, which met in Manchester in July, 1877.

UNIFORMITY OF OBSERVATION AND RECORD.

DR. E. SEGUIN, of New York, made a report as delegate to the International Medical Congress of Geneva:

The Delegates of the American Medical Association to the International Medical Congress of Geneva were charged: "To advocate the adoption of a progressive uniformity of means of observation and record, with the concurrence, if possible, of the members of this Congress who would be found there engaged in advocating the application of uniformity in this and other departments of science."

The question was brought before the British Medical Association, and also before the French Association for the Advancement of Science prior to the direct mission of Geneva. The subject was carried from the Section of General Medicine to the General Congress, and the following resolutions were adopted:

For physicians and surgeons, the principle accepted by the Congress is a gradual international uniformity of their nomenclatures, scales, measures, calibres of instruments; of the records of private and hospital practice, of physiological experiments, of medical climatology, barometry, thermometry, statistics, etc.

In pharmacy the Congress of Geneva has accepted the conclusions voted at St. Petersburg and Brussels, as presented by Profs. Gille and Matsen:

1st. The adoption of a universal pharmacopœia, to be written in Latin.

2d. The decimal system for weights and measures, and the Centigrade scale for temperatures.

3d. A uniform nomenclature (probably that of Berzelius).

4th. The chemical preparations to be of determined strength and purity, and the pure drugs to be of essayed strength, if possible.

5th. The Galenic preparations made as simple as possible, and described according to a uniform plan.

6th. The other pharmaceutical preparations to be made uniform (that is, those which are powerful, like tinctura opii, aconiti, nucis vomicæ, hashish, podophyllin, elaterium, etc.)

7th. Physicians to be left free and responsible for the non-official ingredients and doses of their magistral prescriptions.

MARION SIMS,
THOMAS DRYSDALE,
EDWARD SEGUIN.

The reports were all accepted, and referred to the Committee of Publication.

The Association then adjourned to meet on Wednesday, at 9.30, a. m.

WEDNESDAY JUNE 5TH.—SECOND DAY.

The Association was called to order at 9.30 a. m., by the President, Dr. Richardson.

REPORTS FROM THE JUDICIAL COUNCIL.

The following report was presented by the Judicial Council:

The charges against Dr. J. M. Keller, presented by Dr. G. W. Lawrence, were dismissed as being unworthy of any consideration.

The charges against the Society of Grand Rapids, Mich., presented by Dr. P. J. Dwyer, were unsubstantiated and unaccompanied by witnesses and testimony whereby the Judicial Council might be able to act.

The Arkansas petitions referring to the State Medical Society were dismissed without action.

The charges against the Michigan State Society, by Dr. W. W. Jones, would be reported on by Dr. N. S. Davis, Chairman of the Judicial Council.

The charges against W. T. Barr, M. D., of Abingdon, Va., presented by Dr. Ulrich, of Chester, Pa., were dismissed by the Council.

S. N. BENHAM, M. D., Secretary.

P. S.—In reference to the communication from the State Medical Society of Arkansas, notifying the Association that the Hot Springs and Garland County Medical Society was not recognized by the State Medical Society and protesting against the reception of any member of that Society, it is decided that under the by-laws of this Association said Hot Springs and Garland County Society loses its recognition with the Association from date of its severance from the State Society.

A PHASE OF THE HOMŒOPATHIC QUESTION.

DR. N. S. DAVIS made the following appended report of the Judicial Council concerning the charges against the Michigan State Medical Society, referred by the Association at the Annual Meeting in June, 1877:

"The charge in this case was alleged violation of the Code of Ethics on the part of the Michigan State Medical Society, in electing as a delegate to this Assooiation Dr. E. S. Dunster, of the University of Michigan, knowing him to be engaged in aiding and abetting the graduation of students devoted to an exclusive dogma in medicine.

"After a most careful examination of the Code of Ethics, as it has appeared in the Transactions of this Association from year to year, the Judicial Council fail to find any section or paragraph in it that refers even remotely to the practice that constitutes the foundation of the charge under consideration. That any member of the medical profession proper should ever engage in teaching, examining, and certifying to the qualifications of students, knowing that such teaching and examination was to aid said students in obtaining a diploma directly admitting them into a fraternity of irregular practitioners was evidently not contemplated by the framers of our Code of Ethics; and hence they inserted no clause or section bearing upon that section. The only provision in the Code referring to those engaged in an attempt to practice medicine in accordance with some 'exclusive dogma,' is in the section regulating consultations at the bedside of the sick. If the Judicial Council of this national organization should assume that the section of the Code just referred to indicated the 'spirit' of those who framed and adopted it, and on that assumption apply it to matters and practices entirely foreign to those mentioned in the doctrine itself, it would not only violate all the accepted principles of judicial construction, but would establish a precedent in latitudinous construction of the Ethical Code more dangerous to the best interests of the profession than all the evils sought to be remedied in the case under consideration.

"It is true that this Association has adopted at different times two resolutions, having reference to the subject involved in the charge against the Michigan State Medical Society, which still stand as expressions of opinion unrepealed. But these resolutions constitute no part of the Code of Ethics; neither is obedience to them enjoined by the constitution and by-laws on State and local medical societies as a condition of representation in this Association. Therefore, while deprecating the practice of aiding or abetting in any way the teaching and graduation of students known to be supporters of irregular and exclusive dogmas in medicine, as beneath the dignity of right-minded teachers of an honorable and liberal profession, your Judicial Council can find no clause in either the constitution, by-laws, or Code of Ethics, as they now exist, under which the charge against the Michigan State Society can be entertained and adjudicated."

DR. TONER, of Washington, in view of the fact that there was an unwritten law which governed such cases, moved to refer the report made by Dr. Davis back to the Judicial Council.

The motion was seconded and discussed by Dr. Busey, of Washington, and also discussed by Drs. Toner, Davis, Woodward, Brodie, and Menees.

The hour for the next order of business having arrived, the question was passed over without action.

Letters from Dr. B. A. Vaughn, of Columbus, Miss., and Dr. Robert Battey, of Rome, Ga., expressing regret at 'not being able to attend the Convention, were next read, and ordered entered upon the minutes.

ADDRESS OF DR. H. H. SMITH, OF PHILADELPHIA, CHAIRMAN OF THE SECTION OF SURGERY AND ANATOMY.

Dr. Smith departed somewhat from previous custom in relation to the character of the addresses from the chairman of the sections, and selected a single subject, to which he directed the attention of the Association. The subject was:

CERTAIN POINTS IN THE PATHOLOGY OF THE BONES, ESPECIALLY TUBERCLE.

Recently a new function had been assigned to the skeleton, and the bones had been regarded by many as a focus for the origin of red and white blood-corpuscles, and through which diseased matter was introduced into the general circulation. Certain results which followed operations on the bones—were doubtless due to impairment of the blood-forming functions of the myeloid cells in the medullary portion.

It was suggested that the cases of the bone and joint disease, which had been reported as due to exanthematous fevers (Gibney), were perhaps cases in which the first departure from health was in the medulla of the bones, and that the exanthemata were symptoms, and not causes.

Passing to the consideration of

TUBERCLE IN BONE,

Dr. Smith gave a *résumé* of the opinions which had been given by Virchow, Rindfleisch, Wilson Fox, Rodenstein, of Yonkers, N. Y., and others, regarding the character of tubercle, and from those opinions reached the conclusion that tubercle was formed from the blood through the action of the lymphatic vessels.

The conclusion reached by Dr. Smith was—

1. That tubercle was closely connected with the lymphatics, and that it was deposited in the lymphatic vessels in Pott's disease, also in the epiphyses of the long bones as well as in the spongy bones of the ankle-joint.

2. That its development and progress in these localities was the same as when deposited in other tissues.

3. That tubercle affected the vessels and cancellated structure of the bones, and not the ligaments and cartilage.

4. That the destruction of cartilages and ligaments was the effect and not the cause of nutrition.

5. That softening tubercle produced congestion and inflammation of the bone-cells about the deposit.

6. That perverted myeloid cell action was consequent upon such change, and reacted in the way of modifying the formation of blood-corpuscles.

7. That what was termed scrofulous disease of the bones was essentially a disturbance of the myeloid cells.

The practical lesson to be derived from such facts was that we should still hold to the teachings of our forefathers, and let constitutional treatment form an important and leading part of the management of the case, and that

MECHANICAL APPLIANCES SHOULD BE SECONDARY.

With reference to Pott's disease, Dr. Smith took the open position that *external violence* had nothing whatever to do with it, but that destruction of the cancellated structure of the vertebra was the result of caseous deposite and evacuation of softened tubercle.

He also believed that hip disease was due to the same cause, and that the cancellated structure was first affected. The treatment of Pott's disease by suspension was at least two hundred years old, and the splint which kept the diseased surfaces in hip disease apart was an admirable instrument; but no matter what the mechanical apparatus might be, it should not supplant a proper tonic and alterative plan of treatment.

The treatment of phthisis by injecting the cavities in the lungs had met with some success in the hands of Dr. Pepper, of Philadelphia, and it might yet be a plan of treatment for bone disease to inject the cancellated structure with substances such as phosphoric and lactic acids, etc., which favored the evacuation of the caseous material.

The address was referred to the Section on Surgery.

INTERVENTION OF PHYSICIANS IN EDUCATION.

In the Section on State Medicine and Public Hygiene, June 4th, Dr. E. Seguin, of New York, read a paper upon the above subject, and it was referred to the general Association.

Dr. Frank H. Hamilton, of New York, in behalf of Dr. Seguin, presented the paper, from which he read several extracts, and then opened the discussion. He spoke at some length, and made special reference to the hygienic condition of the public-school rooms in the city of New York, and how unavailing all efforts thus far had proved in the way of securing a medical representation in the Board of Education. The only remedy for correcting the growing evils in connection with school hygiene was in an united action upon the part of the medical profession. Dr. Hamilton closed his remarks by the introduction of the following resolution, which was unanimously adopted:

"*Resolved*, That in the opinion of this Association medical men ought to have a voice in the construction and location of public-school buildings; in the question as to the age at which children should be admitted, the hours of study, the size of type used, and the general management of these institutions; and to this end it is believed to be necessary that one or more intelligent physicians should be placed upon Boards of Education, Boards of Trustees, and upon other similar boards having the control of public education and schools."

Owing to the lateness of the hour, farther discussion was prevented, and the President introduced

DR. E. W. JENKS, of Detroit, Chairman of the Section on Obstetrics and Diseases of Women, who delivered an address upon

THE CAUSES OF SUDDEN DEATH IN PUERPERAL WOMEN.

After reviewing the literature of the subject, Dr. Jenks studied his subject under four heads:

1. Lesions of the Circulatory System.
2. Lesions of the Respiratory System.
3. Lesions of the Nervous System.
4. Puerperal Septicæmia.

The following conclusions were reached:

Septicæmia in its most malignant form was one of the chief causes of sudden death in puerperal women, and it was more than probable that small and large emboli were formed by the disorganizing effect which that condition produced upon the white blood-corpuscles.

Of the various valvular lesions of the heart, mitral stenosis was the most dangerous for the pregnant or puerperal woman. The usual mode of sudden death with the valvular lesions was through pulmonary œdema.

Endocarditis, old and recent, was extremely liable to be rekindled in the puerperal condition, result in ulcerative puerperal encarditis, and give rise to embolism. The practical deduction was that women who had suffered from endocarditis should be discouraged from getting married, lest embolism and sudden death should occur in the puerperal condition.

Endocarditis might result from one of the forms of puerperal fever.

Fatty heart was a possible cause of sudden death in the puerperal woman. Only two cases, however, had been reported, and one was by Dr. Jenks.

Arterial degeneration might cause sudden death in the puerperal woman in two ways: 1. By allowing rupture of the vessel. 2. By favoring the development of thrombosis and embolism.

Arteritis of itself rarely caused sudden death in the puerperal woman.

Phlebitis was a frequent source of sudden death in these cases terminating in pulmonary obstruction. The injection of large quantities of air into the veins caused sudden death, but relatively the entrance of air into the veins of the puerperal woman was an infrequent cause of sudden death. The introduction of the hand into the uterus occasionally caused sudden death by facilitating the introduction of air into the veins.

Puerperal eclampsia was a most conspicuous cause of sudden death, but the mortality in that class of cases had been very much decreased by the progress which had been made in treatment.

Tetanus might give rise to sudden death in the puerperal woman. Every physician should feel bound by professional obligation to thoroughly study the pathological anatomy of any case of sudden death, with the view, if possible, of arriving at the cause of death in any case which came under observation.

There were many other causes, such as ruptured heart, ruptured uterus, apoplexy, profound moral emotion, post-partum hemorrhage, mental excitement, shock, traumatism, etc., which were well recognized, and for that reason their special consideration was omitted.

The address was referred to the section on obstetrics.

PREAMBLE AND RESOLUTION.

DR. J. R. BRONSON, of Massachusetts, offered the following preamble and resolution:

"*Whereas*, By the report of the judicial Council submitted this day, we are informed that the Ethical Code of this Association is imperfect, in that it does not recognize by its letter a conceded violation of the spirit of our profession in its relation to irregular medicine ; therefore,

"*Resolved*, That said Council be instructed to submit to this association, at their next meeting, for its consideration, an amendment to the Code covering this omission."

The resolution was referred to the Judicial Council as a committee.

DR. FOSTER PRATT, of Kalamazoo, Michigan, offered a resolution in relation to the legal status of the insane, which was referred to the Section on Medical Jurisprudence.

The association then adjourned to meet on Thursday, June 6th, at 9.30 A. M.

WEDNESDAY EVENING.—SECOND DAY.

MORPHOLOGICAL CHANGES IN SYPHILITIC BLOOD.

In the section on practical medicine,

DR. EPHRAIM CUTTER, of Boston, gave a micro-photographic exhibition of morphological changes which occurred in the blood in consequence of syphilis. The diagnosis of syphilis was based upon the presence in the blood of a *copper-colored* filiform growth with rounded and enlarged extremities and spores. Dr. Cutter regarded the demonstration as corroborative of the claims made by Dr. Salisbury in connection with the same subject.

He thoroughly believed that positive diagnosis of syphilis could be made by miscroscopical examination of the blood.

He also believed that Lostorfer was correct in his statement that the white blood-corpuscles were enlarged in syphilis ; but he should have insisted upon the *copper color* of the spores.

THURSDAY, JUNE 6TH.—THIRD DAY.

The Association was called to order at 9.30 A. M. by the President.

REPORT FROM THE JUDICIAL COUNCIL.

The Judicial Council reported that the charges against the Iowa State Medical Society, and Scott County Medical Society, presented by Dr. P. J. Farnsworth, were dismissed, because the subject had been already adjudicated by the council at their Detroit meeting in 1874. They also reported that in the matter of the Washtenaw County Medical Society, it was decided that the Ann Arbor Society was entitled to two delegates to the present meeting.

DR. A. C. POST, of New York, moved that the first two on the list from the Ann Arbor Medical Society be received as delegates, the others remaining as members by invitation. Carried.

CONSOLIDATION OF SECTIONS.

DR. A. N. BELL, of Brooklyn, offered the following resolution, which was laid over until next year:

"*Resolved*, That Section Four, on Medical Jurisprudence and Psychology, and Section Five, on State Medicine and Public Hygiene, be consolidated into one Section as Section Four."

REPORT OF JUDICIAL COUNCIL AS A COMMITTEE.

DR. N. S. DAVIS, Chairman of the Judicial Council, presented the following report as an amendment to the Code of Ethics:

"In obedience to the instructions of the Association, the Judicial Council, acting in the capacity of a committee, have unanimously instructed me to report to your Honorable Body the following amendment and addition to paragraph 1, of the second division of the Code of Ethics, under the general heading, 'Of the Duties of Physicians to each other, and to the Profession at large,' and the special heading, 'Duties for the Support of Professional Characters." The same, when finally adopted, to be added at the end, to constitute a part of said paragraph 1, of article 1. The proposed addition is in these words: 'And hence it is considered derogatory to the interests of the public, and to the honor of the profession, for any physician or teacher to aid, in any way, the medical teaching or graduation of persons, knowing them to be supporters and intended practitioners of some irregular and exclusive system of medicine.'"

REPORT OF THE COMMITTEE ON NECROLOGY.

DR. J. M. TONER, of Washington, Chairman, presented the report, which contained sketches of seventy-five members. He further remarked that there were 850 names now upon the list of necrology of the Association.

The report was referred to the Committee of Publication.

COMMITTEE ON NATIONAL LIBRARY.

The Secretary stated that the Committee on Catalogue of National Library was not prepared to report, and asked that the committee be continued. Granted.

ADDRESS OF DR. A. L. LOOMIS, OF NEW YORK, CHAIRMAN OF THE SECTION ON PRACTICAL MEDICINE, MATERIA MEDICA, AND PHYSIOLOGY.

DR. LOOMIS opened his address by making brief reference to a few of the more important advances in medicine which had been made during the past year, and then passed to the consideration of the *climatic treatment of pulmonary phthisis.*

With reference to the *germ theory* of disease it was believed that the facts as now presented did not warrant its acceptation.

With reference to the *etiology of typhoid fever* no new facts had been elicited regarding its spontaneous or specific origin.

The experiments of Heidenheim had gone far to establish the fact that *croupous pneumonia had a specific* origin, and could not be excited by simple irritation of the respiratory passages.

Reference was made to Lancerot's description of a new form of diabetes, due to changes occurring in the pancreas.

Reference was also made to several new discoveries made in physiology. Among these, Dr. J. W. S. Arnold, of New York, demonstrated by a series of experiments that the *first sound of the heart* had a muscular origin.

Mention was also made of several comparatively new therapeutic agents, such as jaborandi, hydrobromic acid, thymol, and the alkaloids used as a substitute for formic.

THE CLIMATIC TREATMENT OF PULMONARY PHTHISIS.

Dr. Loomis then passed to the consideration of the chief topic in his address, namely, some of the indications and considerations which should influence one in arriving at a decision with reference to the climate and locality best suited to each phthisical patient amenable to climatic treatment.

SANITARIUMS.

In order to obtain the greatest success in the climatic treatment of phthisis, it was necessary to have sanitariums under the direction of intelligent physicians, where patients could go and be free from all exciting causes of the disease. For the phthisical patient not the first step had yet been taken towards the proper construction and equipment of such resorts. Such sanitariums as could receive the endorsement and sanction of the leading medical men were needed in all parts of the country.

Dr. Loomis closed his address with the following practical suggestion:

OUR MINERAL SPRINGS.

"It seems to me that the necessities of our time are demanding the establishment not only of well-organized and thoroughly equipped sanitariums by the sea, in the mountains, in the cold regions of the North, and in the warm regions of the South, but that our mineral springs should be utilized for the cure of disease. No one doubts but they are equal, if not superior, to those of the old world; yet to-day we know more of the virtues of Carlsbad, Kissengen, Vichy, and Hunyadi waters than those of Saratoga, Virginia, Arkansas, and Colorado. Has not the time come, gentlemen, when some organized action should be taken in this matter?"

DR. C. N. PALMER, of Lockport, moved that the address be referred to the Section on Practical Medicine. Carried.

DR. BOWDITCH, of Boston, made a few remarks, and stated that in his experience for phthisical patients sanitaria upon the sea-shore were injurious.

Dr. JAMES B. WHITE, of Buffalo, offered the following resolution:

"*Resolved*, That a committee of five be appointed to confer with General Meyer upon the subject of making observations as to the existence of ozone in various localities, and take such other steps and measures in the matter as may be necessary for the success of the object."

In seconding the above, DR. DAVIS, of Chicago, briefly stated what had already been done to attain the object by the profession since 1874. After a discussion by Drs. Busey, White, Bell, Bronson, Leonard, Loomis, and Davis, the resolution was adopted.

REPORT OF THE COMMITTEE ON NOMINATIONS.

DR. TONER, Chairman of the Committee on Nominations, announced that they were ready to make their report.

DR. HUPP, Secretary of the Committee, read the following, which, upon motion made by Dr. James P. White, of Buffalo, was accepted and unanimously adopted:

After due consideration the Committee on Nominations respectfully report that they have nominated the following gentlemen for the various offices named, to wit:

For President—Theophilus Parvin, M. D., of Indiana.

For Vice-Presidents—A. J. Fuller, M. D., of Maine; W. F. Westmoreland, M. D., of Georgia; John Morris, M. D., of Maryland; John H. Murphy, M. D., of Minnesota.

For Treasurer—Richard J. Dunglison, M. D., of Pennsylvania.

For Librarian—Wm. Lee, M. D., of District of Columbia.

Committee on Library—John Eliot, M. D., of District of Columbia.

Next place of meeting—Atlanta, Ga.

Time of meeeting—The first Tuesday in May, 1879.

For Assistant Secretary—Scott Todd, M. D., of Atlanta, Ga.

REPORT ON RECOMMENDATIONS IN EX-PRESIDENT BOWDITCH'S ADDRESS.

DR. N. S. DAVIS, Chairman of the Committee, made a somewhat lengthly report, and closed as follows:

"After a careful review of the whole subject, indeed by many years of careful observation in the Sections of the Association, the undersigned would recommend no change in the present by-laws and ordinances regulating the working of the Sections, except the striking out of the paragraph in Section 11 of the by-laws, commencing with 'Papers appropriate to the several Sections,' etc., and inserting in its place the following:

"'It shall be the duty of every member of the Association, who proposes to present a paper or report to any one of the Sections, to either forward the paper, or a title indicative of its contents and its length, to the Chairman of the Committee of Arrangements at least one month before the annual meeting at which the paper or report is to be read. It shall also be the duty of the President and Secretary of each Section to communicate the same information to the Chairman of the Committee of Arrangements concerning such papers and reports as may come into their possession or knowledge for their respective Sections the same length of time before the annual meeting. And the Committee of Arrangements shall determine the order of reading or presentation of all such papers, and announce the same in the form of a programme for the use of all members attending the annual meeting. Such programmes shall also contain the rules specified in the by-laws and ordinances concerning the consideration and disposal of all papers in the Sections.'

"All of which is respectfully submitted. N. S. DAVIS,
S. D. GROSS."

DR. BOWDITCH presented the following *minority report:*

"The undersigned still holds to the opinion that the submission to trained experts of all papers read or presented to the various Sections of the Association would tend to make our published Transactions more interesting, and vastly to increase their scientific merits, although perchance making them less bulky.

"He believes, moreover, that some other of the amendments suggested by him would ultimately be of service to the Association.

"He admits the cogency of the arguments of the majority of the committee in regard to permanent membership.

"He still adheres to the idea that the time spent in discussions in regard to the by-laws in any scientific body is commonly so much time wasted, which should be spent in more congenial and appropriate work, and that no changes, even though deemed very important by a few, should be made in the organic law, if they do not meet with favor with a large majority of the body.

"And, finally, in full confidence that with our present by-laws, if the Chairmen and Secretaries of the Sections and of the Committee of Arrangements will do thoroughly their respective duty, the meetings of this Association and its transactions will annually grow better, as they have done in the past, the undersigned will not oppose the report of the majority of the committee.

HENRY I. BOWDITCH."

The majority report was unanimously adopted.

STATE MEDICINE AND PUBLIC HYGIENE.

DR. J. L. CABELL, of the University of Virginia, Chairman of the Section, delivered an address, in which he maintained that the establishment of a general Board of Health was the indispensable measure to any systematic effort to inaugurate State medicine in any of the States of the Federal Union.

As to the value of sanitation in general in diminishing the death-rate, reference was made to the address of Mr. Edwin Chadwick, delivered before the British Social Science Association, at Aberdeen, September 13, 1877.

Speaking with reference to the maintenance of the purity of the air within and around dwellings, Dr. Cabell remarked that the evidence of advance in public hygiene consisted not so much in the discovery of new facts and principles, as in more careful, exact, and honest methods of sanitary engineering, in conformity with well-known laws of sanitary science. It could scarcely need be said that one of the most fruitful sources of the impurity of the air around dwellings, and consequently of the air within dwellings, since the latter was constantly being replaced by the former, was the damp condition of the ground, which, however well drained of subsoil water at first, was liable to subsequent contamination with liquid filth, whether arising from slops thrown upon the surface of yards or gardens, or from the dejections of animals. A soil well ærated by proper water-drainage, would, in a measure at least, oxidize the organic matters, and mitigate the generation of malaria. It would not, however, be safe to rely upon that to disinfect the excrement-sodden soil in the streets of cities, and it became an important problem of sanitary engineering how to protect the atmosphere of cities from that source of contamination. That end could probably be secured by the best asphalt pavements, such as had been largely used in some cities of Europe, and had been successfully introduced in some parts of Brooklyn, and on the principal avenues of the national metropolis. No water or filth could penetrate them, and they were easily cleaned at less expense than any other pavement. A necessary condition, however, of the beneficial action of impervious pavements was the absolute freedom of the subsoil from the contamination which might arise from defective sewers, or from percolation of the contents of cesspools.

Reference was then made to what had been accomplished by sanitary measures in preventing the spread of contagious diseases, and from that point Cabell proceeded to discuss at considerable length the theory of *contagium vivium.*

The address was referred to the Section on State Medicine and Public Hygiene.

QUESTION OF PRIVILEGE—SHORTENING IN FRACTURES.

DR. LEWIS A. SAYRE, of New York, rose to a question of privilege, and asked that he be recorded upon the minutes as opposed to the passage of the resolution, adopted by the Association at its meeting held in Chicago in 1877, relating to the occurrence of shortening in fracture of the long bones.

The purport of the resolution was that shortening was the rule, in spite of all treatment, and he wished to be recorded as opposed to the doctrine that fractures could not be treated without such result.

The request was granted.

The Association then adjourned to meet on Friday, at 9.30 A. M.

FRIDAY, JUNE 7TH.—FOURTH DAY.

The Association was called to order at 9.30 A. M. by the President, Dr. Richardson.

COMMITTEE ON OZONE.

Pursuant to resolution offered by Dr. White in yesterday's session, the President announced the Committee on Ozone as follows: Dr. N. S. Davis, of Illinois, Chairman; Dr. J. S. Billings, of United States Army; Dr. W. N. Geddings, of South Carolina; Dr. J. M. Toner of the District of Columbia, and Dr. S. M. Bemis, of Louisiana.

DUTY OF THE COMMITTEE ON NECROLOGY.

The following resolution was offered by **DR. J. S. HIBBARD**, of Indiana:

"*Resolved*, That hereafter it shall be the duty of the Committee on Necrology to confine their reports to the death of medical men who have been members of this Association and at the time of death were still in good fellowship or honorably separated from the Association." Adopted.

ORGANIZATION OF STATE BOARDS OF HEALTH.

DR. A. N. BELL, of Garden City, moved the continuance of the committees appointed two years ago for the organization of State Boards of Health. Carried.

METRIC SYSTEM — COMMUNICATION FROM THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

The following communication from the Medical Society of the State of Pennsylvania was read by the Secretary:

"At the annual meeting of this body held in Pittsburg, May, 1878, it was unanimously

"*Resolved*, That the Medical Society of the State of Pennsylvania, recognizing the advantages of the metric system from its universality, simplicity, and scientific character, does recommend the use of the same to the members of this Society, and urges them to familiarize themselves with it, and to advise their students to use it exclusively when they commence their medical career.

"*Resolved*, That in all communications made to this Society, in which reference is made to weights and measures, the metric system only should be used.

"*Resolved*, That the Secretary of this Society is instructed to bring this action of this Society to the notice of the American Medical Association at its next meeting, and urge upon the National Association a similar action."

On motion by Dr. Atkinson, seconded by Dr. N. S. Davis, the communication was received and placed upon the minutes.

MEDICAL UNIFORMITY — COMMISSIONERS AND DELEGATES TO EUROPE.

On motion, Drs. Marion Sims, Thomas Drysdale, and E. Seguin, were confirmed delegates to Europe, upon the question of medical uniformity, to report next year.

COMMITTEE ON THE ADDRESS OF THE CHAIRMAN OF THE SECTION ON PRACTICAL MEDICINE.

DR. N. S. DAVIS, of Chicago, offered the following resolution, which was adopted:

"*Resolved*, That the Section on Practical Medicine, Materia Medica, and Physiology recommend the appointment by the American Medical Association of a committee of five members, to whom shall be referred so much of the recommendations in the address of the President of that Section as relates to the establishment of proper sanitaria for consumption, and the more accurate utilizing of the various mineral waters of our country, with instructions to report at the next meeting of the Association.

The President appointed the following members as such committee: Dr. H. I. Bowdwitch, of Massachusetts; Dr. A. N. Bell, New York State; Dr. J. L. Cabell, of Virginia; Dr. S. E. Chaillé, of Louisiana; and Dr. Charles Dennison, of Colorado.

LEGAL RELATIONS OF THE INSANE.

The following resolutions concerning certain legal relations of the insane, offered by Dr. Foster Pratt, of Michigan, in Section V., and referred to the Association, were received and adopted:

"*Resolved*, That the personal restraint of the insane is an essential element of the medical treatment of their disease, the use of which, as a therapeutical agency, may be justified by their insanity, just as the use of it as a public agency, for the prevention of injury to person or property, is justified by their dangerous conduct.

"*Resolved*, That while none question the necessity for specific statutory provisions to regulate the restraint of those insane persons who are wholly or partly a public charge, we maintain

"That it is the duty of relations and friends, and it is also their natural and inherent right, whether declared or understood by statute, to retain and to care for their sick or insane relations as a private patient at his or their expense, in his or their home, or in a legally recognized and regulated hospital; and

"That the exercise, by them, of so much restraint as is essential to their proper treatment of his disease is not a violation of his rights of personal liberty; and

"That their duty and right to exercise such remedial restraint are subject to State surveillance or legal limitations only so far as may be necessary to prevent their neglect of that duty or to punish their abuse of the right."

REPORT OF COMMITTEE APPOINTED TO SECURE THE FORMATION OF STATE BOARDS OF HEALTH.

"Your committee, consisting of the President and Permanent Secretary, who are required to report annually the results of their efforts for the organization of State Boards of Health, respectfully report that they have addressed the Governor of each State where a Board of Health has not been organized with a suitable memorial. A few Executives have courteously acknowledged this communication and expressed their earnest desire to further our efforts. We are happy to announce that three additional State Boards have been organized, making nineteen in all, viz.: Alabama, California, Colorado, Connecticut, Georgia, Illinois, Kentucky, Massachusetts, Maryland, Michigan, Mississppi, New Jersey, North Carolina, Tennessee, Rhode Island, Virginia, Wisconsin." Adopted.

NEW SECTION.

DR. X. C. SCOTT, of Ohio, called up the resolution of last year, creating a new Section of Ophthalmology and Otology, to be known as Section VI., and moved its adoption. Carried.

On motion of Dr. E. SMITH, of Detroit, Dr. H. Knapp, of New York, was made Chairman of the new Section, and X. C. Scott, of Ohio, was made Secretary.

ADDRESS OF DR. WALTER KEMPSTER, OF OSHKOSH, WISCONSIN, CHAIRMAN OF THE SECTION ON MEDICAL JURISPRUDENCE, CHEMISTRY, AND PSYCHOLOGY.

DR. KEMPSTER first considered the pathological brain lesions characteristic of insanity. The blood-vessels were changed in appearance, the morbid process beginning in the walls of the capillaries. Miliary aneurisms occurred, and as they ruptured speedily became the centres for changes in the brain tissue. The interstitial tissue of the brain was also affected, and changes were also found in the nerve-cells in the way of hypertrophy, atrophy, nucleus becoming diseased. There was also change in the substance of the cell. The cell changes might be so extensive that in the place of nerve-cells there were seen masses of granular material having no relation whatever to the appearance of a normal cell. With reference to the membranes of the brain, Dr. Kemper thought that they were quite uniformly found affected in all cases of insanity, and that there existed adhesions between the membranes and the brain, especially over its anterior portions, thus affecting the motor centres. Absence of such adhesions at the posterior part of the brain was a noticeable feature.

The question of

LOCALIZATION OF FUNCTIONS

was discussed at some length, and the cases reported by Charcot, E. C. Seguin, and others were referred to as evidence of the correctness of the doctrine. Reference was also made to the teachings of Brown Séquard and Schiff in opposition to the theory of localization of functions. Dr. Kempster believed that the weight of accumulative testimony went to show that the localization doctrine was correct.

Refecence was made to a case of

TEMPORARY AND TRANSIENT APHASIA

which had fallen under his observation. It was believed to be due to cerebral anæmia.

Special mention was made of two cases in which convulsions could be produced by pinching the dura with a pair of forceps through an opening made in the skull by a fracture.

In the department of

MEDICAL JURISPRUDENCE

nothing had occurred during the past year worthy of special mention, unless it was that Wisconsin lawyers and a judge had recognized the fact that the "knowledge test" was unreliable.

DR. KEMPSTER expressed the hope that the time would come when the *court* would call expert testimony, if the obscurity of the case seemed to make it necessary.

The address was referred to the Committee on Publication.

TREASURER'S REPORT.

DR. RICHARD J. DUNGLISON, Treasurer, reported as follows:

"The Treasurer has the honor to report a balance in the treasury at the end of the fiscal year of $2,446.02. This amount is much larger than would have been found there had any deduction been made to pay the Permanent Secretary an honorarium for his services for the previous year. For the first time for a number of years the Association at its last meeting omitted to pass a resolution appropriating money to this end, and the Treasurer was thus left without authority to devote the funds of the Association to such purpose. The annual amount, whatever it might be, voted by that body to its Secretary, was an honorarium, and not a salary, the Association having decided in 1873, upon the adverse reports of a committee appointed in 1872 to decide upon the propriety of making the office a salaried one, that 'no amount of specified salary be attached to the office.' Ever since that time an honorarium, not a salary, has been paid him by the Treasurer, but never without the authoritative order of the Association, as conveyed by annual resolution.

"The Treasurer is in constant receipt of applications from members for volumes of the Transactions of the Association which are entirely out of print. As some of the members are in possession of scarce volumes, which they may not retain, the Treasurer will willingly act as a medium of exchange, and thus accommodate those who are anxious to complete their sets." [Here followed a financial statement].

The report was adopted and referred to the Publication Committee.

The annual report of the Publication Committee was received and adopted.

HONORARIUM TO THE PERMANENT SECRETARY.

DR. N. S. DAVIS, of Chicago moved that the Treasurer be authorized to draw his warrant and pay to the Permanent Secretary the sum of $700 as an honorarium for the faithful performance of his duties. Carried.

REPORT OF COMMITTEE ON PRIZE ESSAYS.

"Your committee to determine the merits of prize essays would respectfully report: That they have had three separate papers submitted to their inspection. Two of these papers present subjects of very great interest, and show original researches, but are too imperfect, in the estimation of the committee, to command a prize. The remaining paper, in the judgment of your committee, is fully up to the requirements. Indeed, the paper is so elaborate as to fill a large space in the volume of the Transactions of the Association. The paper should be considered as *two* and not as *one.* The analysis of 789 cases of operation on the carotid artery, and the careful and minute measurements of the artery and its branches in one hundred and twenty-one subjects, showing the range of variation and the percentage of the same, followed by inferences bold and original, naturally constitutes a paper complete in itself. Another one on the same plan with reference to the innominate and subclavian, being an analysis of 300 cases, and the observation of fifty-two subjects, is presented to us in such a manner, that we may consider the whole as one prize, or they may compete for both.

"Your committee believe that both prizes should be awarded to the two essays by one person. The motto is, 'Tempora mutantur et nos mutamur in illis.'

E. M. MOORE, Chairman,
THOS. LOTHROP,
H. R. HOPKINS,
W. W. MINER."

The recommendation of the committee was unanimously adopted.

On opening the sealed envelope the name of the successful essayist was found to be **DR. JOHN A. WYETH**, of New York City.

THE LIBRARIAN'S REPORT

was referred to the Committee on Library.

On motion made by **DR. BRODIE**, of Detroit, the Treasurer was authorized to pay to the Librarian the sum of two hundred dollars, to be used by him according to the recommendation contained in his report—namely, for binding pamplets and loose papers.

On motion of **DR. DAVIS**, of Chicago, the recommendation of the Librarian adding Dr. J. M. Toner, of Washington, to the Library Committee, was adopted.

DR. J. M. KELLER, of Arkansas, offered the following, which was laid over for one year:

"*Resolved*, That in future the Committee on Nominations shall present the name of no person for appointment or election to office or position, save on the Committees on Necrology and Climatology, unless the party nominated be in attendance on the Association at the time."

PROPOSED NEW SECTIONS.

DR. J. J. CALDWELL, of Maryland, offered a resolution creating a new Section upon "Neurology and Electrology." Action deferred for one year.

DR. MADDOX, of Baltimore, Md., offered a resolution creating a Section on "Diseases of Genito-Urinary Organs, including Dermatology and Syphilis." Action deferred for one year.

IN MEMORIUM.

Dr. J. M. Toner, of Washington, offered the following preamble and resolutions which were adopted:

"*Whereas*, A short time previous to the meeting of this Association, Professor Joseph Henry, late Secretary of the Smithsonian Institute, departed this life full of years and honors; therefore, be it

"*Resolved*, That the American Medical Association hereby offers its tribute of respect to the name of this illustrious man, whose pure and noble life, as well as his great attainments and actual discoveries, have long since placed him at the head of the men of science in this land.

"*Resolved*, That while we share the common grief of all his fellow-countrymen on the occasion of his death, we believe his name will be established in the memory of posterity, and we hold up his example for the emulation of all lovers of the truth, now and hereafter.

"*Resolved*, That a copy of these resolutions be transmitted to the Regents of the Smithsonian Institute and to the family of the deceased."

AMENDMENTS TO THE BY-LAWS.

Dr. Davis, of Chicago, offered a resolution with reference to the following amendments proposed by him last year, which was adopted:

"Strike out all of third paragraph, Section VIII.: 'It shall be the duty of every member of this Association, who learns that any existing medical school departs from the published conditions of graduation, to report the fact at the annual meetings; and, on proof of the fact, such school shall be deprived of its representation in this body.'

"Strike out all of second paragraph, Section IX.: 'This Association recognizes as a "regular organized" medical college one that has been represented at any meeting, and that complies with the rules and directions found in the published *Transactions*, vol. xiii., page 33.'"

Dr. Hitchcock, of Michigan, offered an amendment to the by-laws with reference to the nomination of officers.

Laid over for one year.

Dr. Richardson, with complimentary remarks, then introduced

DR. PARVIN, the President-elect, who, in most eloquent and appropriate words, addressed the Association and returned thanks for the high honor it had conferred upon him.

DR. J. H. VAN DEMAN, of Tennessee, offered resolutions, which were unanimously adopted, expressive of the appreciation of the hospitalities and courtesies extended to the members of the Association by the medical profession and the citizens of Buffalo, and also thanking the officers of the Association for the promptness with which they had discharged their several duties.

On motion, the President declared the Association adjourned, to meet at Atlanta, Ga., on the first Tuesday in May, 1879.

OVARIAN DYSPEPSIA. – Dr. Milner Fothergill describes a form of dyspepsia, combined with leucorrhœa, and commonly too with menorrhagia, which depended upon morbia conditions of one or both ovaries. Experiment has shown that irritation of the sympathetic nerves of the stomach produces contraction of the gastric arterioles and defective secretion of gastric juice. In aggravated cases, there was vomiting of a reflex character, as seen in the early months of pregnancy and in calculus of the kidney. This form of dyspepsia was very intractable, unless its causal relationship were remembered and borne in mind in the treatment. Blisters over the ovary with bromide of potassium, and sulphate of magnesia internally, were more effective than bismuth and hydrocyanic acid.—*Medical Examiner*, (*London* , Nov. 1, 1877.

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ANNOUNCEMENT EXTRAORDINARY!

Editorial.

As the last sheets of this issue of THE LANCET AND OBSERVER are going to press, arrangements are consummated for the immediate consolidation of this journal and THE CLINIC. The combination to constitute the future Medical Journal of Cincinnati, and will be known as THE CINCINNATI LANCET AND CLINIC, and will be issued every week.

For thirty-seven years THE LANCET AND OBSERVER and its immediate predecessor THE WESTERN LANCET has held an enviable position in periodical medical literature, always a leading journal, largely moulding and directing the opinions of a large constituency. During this long period we are glad to say the journal has been liberally supported by the profession, while its pages of contents have been enriched by the best thoughts of the ablest physicians and surgeons of the West. The general and continued popularity of the journal need not be wondered at when we remember that its founder was the gifted teacher and cultured writer the late Prof. L. M. Lawson. While his successors were such men as Drs. Thomas Wood and George C. Blackman, George Mendenhall and Edward B. Stevens, E. Williams and John A. Murphy, such a galaxy should assure success to any professional undertaking.

Three years ago THE INDIANA JOURNAL OF MEDICINE was consolidated with THE LANCET AND OBSERVER, its editor Dr. T. M. Stevens became a member of the editorial staff of the latter journal. This combination added largely to the circulation and influence of the journal in the state of Indiana.

The times seem propitious for another change, of late years there has developed a demand for journals of frequent issue, those that will carry the news of the latest discovery in science with the greatest speed, especially during the last decade the advance of medical science has been so rapid that the once popular, staid and dignified quarterlies, and even the more practical monthlies, have been too slow in meeting the daily demands of the ever increasing number of wide-awake practitioners who occupy the land.

No fact is better recognized than this, that a physician can neither do justice to his patients nor himself unless he is a constant reader of medical journals; they are his mental pabulum, the supply must equal the demand, or there will ensue a general condition of atrophy. This atrophy is always serious in its results and we are loth to say is too often incurable, its first effect is noticeable on the doctor, and manifests itself in a general down-at-the-heel appearance, his pocket-nerve shrinks from want of use, and his patients shrink and often actually disappear from view. And all because of a plentiful lack of daily mental pabulum, that can only be furnished by frequent contact with a live first class medical journal, such as we propose furnishing in THE LANCET AND CLINIC.

Dr. J. G. Hyndman the present editor of *The Clinic* will continue as one of the editors of the combined journal, his qualifications and experience are so well known and of such a character that it is unnecessary for us to more than mention, the statement to our readers, to obtain their hearty approval of the consolidation, his labors will be made manifest on every page of THE LANCET AND CLINIC. Doctor T. M. Stevens will continue to be our Indianapolis editor, and will have an eye to the interests of the journal in that direction.

THE LANCET AND CLINIC will contain every week not less than twenty pages of reading matter, arranged in double columns, and will be issued in good mechanical style. The subscription will be $3.50 per annum, payable in advance. For this extremely low price we purpose issuing a journal that will be second to none in this country. Ample arrangements are made for providing our readers with the freshest thoughts of the whole medical world, and the journal will be of such a character that no doctor in the West can afford to be without it, and he may rest assured that if he makes such an attempt, he will as certainly become afflicted with atrophy in all its forms and phases.

Carry the news to your County Society and tell its members who are not now subscribers of what they are in danger, unless they at once order and pay for THE LANCET AND CLINIC.

With a fond look of remembrance of the success and triumph of THE LANCET AND OBSERVER, we say—good-bye monthly. And with cheerful hearts—not doubting the result of future labors, we welcome, WEEKLY LANCET AND CLINIC.

CONGRATULATIONS are in order to Dr. Parvin, of Indianapolis. The honor of being President of the American Medical Association, is about the highest persimmon a doctor can knock in this land o' liberty of ours.

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Abstract.

Current Contributions to Obstetrics, Gynecology and Diseases of Children.

Condensed by **Edward B. Stevens**, M. D., Lebanon, Ohio.

SUCCESSFUL TRANSFUSION IN SEVERE POST PARTUM HEMORRHAGE.—On the afternoon of June 26th, Mr. Cameron was called to Mrs. S. L——, on account of severe hemorrhage after delivery. She was thirty-four years of age, and had not previously borne children. It was ascertained that she had been losing blood for fourteen days previous to the above date, that the labor had been natural and that the child, which was living, had been born one hour and a half before his arrival. He found that the hemorrhage was still going on, and that the placenta was adherent to the fundus and anterior surface of the uterus. The woman was in a state of collapse, the pulse was scarcely perceptible at the wrists, the face and lips were blanched, and the extremities cold. Mr. Cameron removed as quickly as possible, but much blood was lost while this was being done; and the uterus did not contract afterwards. Some liquor ferri per chloride portion diluted, 1 vol. to 4 vols. of water, was accordingly at once injected. This immediately arrested the hemorrhage. Hot water bottles were then applied to the feet, two brandy enemeta injected, and Dr. Cory sent for to perform transfusion.

On seeing the patient Dr. Cory determined at once to have recourse to the operation. The woman was now quite unconscious, and kept throwing her arms from side to side. Dr. Roussel's apparatus was at hand at the Hospital (St. Thomas). This was obtained without delay, and Mr. Cameron offered his blood. The cup of the instrument was applied over his left radial vein; then the left radial vein of the woman was opened, but this was found too small to admit the cannula for a sufficient distance without splitting. Accordingly the right median basilic was substituted; this was of ample size. When all was ready Mr. Cameron's vein was pricked. The blood flowed readily, and filled the injecting ball rapidly, so that in a very short time ten ounces of blood was passed. Immediately on the passage of the blood the woman seemed to revive, and at the close of the operation was evidently better. The color had returned to the face and lips, and the pulse, before imperceptible was now evident.

On June 27th, at 1 A. M., her extremities were warm, she was perfectly conscious, put her tongue out when asked, and said she had no pain except in her head. Temperature 87–8° C. Taking iced milk and brandy as nourishment. Respiration normal. At 11 A. M., she spoke and seemed quite rational; said in answer to questions, that she was thirty-four, and had been married about a year, and that her child was a girl; she moreover stated that she remembered nothing of what had taken place the day before, after her delivery until evening.

She steadily improved, and left her bed on the fifth of July, only ten days after the labor.—*London Lancet*, Dec., 1877.

Reviews and Notices.

Atlas of the Diseases of the Skin. By Belmanno Squire, M. B., Surgeon to the British Hospital for Diseases of the Skin. Part I. London: J. A. Churchill, 1878.

This Atlas is unique in size if not in character, being scarcely as large as THE LANCET AND OBSERVER. We think this advantageous in many respects, as the book is much more convenient for daily use, and makes a library volume of ordinary size. The chromo-lithograph plates are very fine, and in this number illustrate nævus vascularis (two plates), psoriasis diffusa (two plates). The author has been unusually successful in devising ways and means for the successful treatment of the unsightly affections which form the subject matter of this part of his atlas, his mode of procedure is admirably delineated both in the illustrations and in the accompanying text. The atlas is well adapted to the use of the general practitioner, and no specialist in the treatment of skin diseases can afford to be without it.

A New Work on Gynecology. By Dr. Goodell. D. G. Brinton, M. D., Medical Publication Office, No. 115 South 7th Street, Philadelphia.

Atlas of Skin Diseases. By Louis A. Duhring, M. D., Professor of Skin Diseases in the Hospital of the University of Pennsylvania, etc. Part III. Philadelphia: J. B. Lippincott & Co.

This number of Dr. Duhring's Atlas treats of and illustrates in a beautiful manner Squamous Exzema, Syphiloderma (Erythematosum), Purpura (Simplex), and Syphiloderma (papulosum et pustulosum). As a work of art the atlas is highly creditable to the publisher, and makes the context doubly interesting.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. Von Ziemssen, Professor of Clinical Medicine in Munich, Bavaria. Vol. XVII. General Anomalies of Nutrition, and Poisons. By Professor H. Immerman, of Basel; Prof. Bœhm, of Dorpat; Prof. B. Naunyn, of Kœmigsburg; and Prof. H. Von Bœck, of Munich. Albert H. Buck, M. D., New York, Editor of American Edition. New York: William Wood & Co., 1878. For sale by Robert Clarke & Co. Price $5 00.

The first article in this volume is devoted to a most interesting account of the affection known as Hæmophilia or Bleeder-disease by Prof. Immerman. In regard to the various theories that have been advanced in explanation of the cause of this fatal affection, none have been accepted as entirely satisfactory, and the solution of its pathology is left to the future to determine. The next article is by the same writer and gives a very complete resume of the literature of the now, uncommon scorbutic disease. He also contributes the succeeding paper on Purpura Hæmorhagica or Morbus Maculosus.

The remainder of the volume is taken up with the subject of poisons.